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REPORT

OF THE

U.S. FEDERAL TRADE COMMISSION

ON THE

Pacific Coast Petroleum Industry

PART I 94

PRODUCTION, OWNERSHIP, AND PROFITS

April 7, 1921

WASHINGTON
GOVERNMENT PRINTING OFFICE
1921

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REPORT

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FEDERAL TRADE COMMISSION

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Pacific Coast Petroleum Industry

PART I

PRODUCTION, OWNERSHIP, AND PROFITS

FEDERAL TRADE COMMISSION.

HUSTON THOMPSON, *Chairman*
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J. P. YODER, *Secretary*.

WASHINGTON
GOVERNMENT PRINTING OFFICE
1921

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LETTER OF SUBMITTAL.

FEDERAL TRADE COMMISSION,
Washington, April 7, 1921.

To the PRESIDENT OF THE SENATE.

SIR: The Federal Trade Commission submits herewith Part I of a Report on the Pacific Coast Petroleum Industry, which is made pursuant to Senate resolution 138, Sixty-sixth Congress, first session.

This part deals with production, ownership, and profits. The second part, which is in course of preparation, will discuss prices, marketing methods, and competitive conditions.

The outstanding facts regarding the Pacific coast petroleum industry shown in this part of the report may be concisely stated as follows:

(1) Owing to the scarcity and high prices of coal, petroleum products, especially fuel oil and gasoline, are probably of more importance to industry and commerce on the Pacific coast than in any other large section of the country.

(2) California, however, is one of the largest petroleum producing States; its output has rapidly increased, and there are no present indications of a decline in the near future.

(3) Recently, i. e., from June, 1915, to January, 1921, demand has exceeded supply, with a consequent steady reduction of stocks, but since the beginning of this year production has exceeded consumption and stocks have increased slightly.

(4) The oil land "withdrawals" ordered by the Government in 1909, for the purpose of reserving a supply for the Navy and in order to suspend the patenting of oil lands until the public land laws could be revised, did not prevent overproduction down to June, 1915, but from then until 1920 had probably a somewhat retarding influence on the development of new production.

(5) All branches of the petroleum industry on the Pacific coast, i. e., crude petroleum production, pipe-line transportation, and refining and marketing, are dominated by a few large interests which control most of the proven oil lands and operate nearly all the pipe-line and refining equipment.

(6) The costs of producing crude petroleum vary widely between different fields and between different companies in the same field. The chief factor in cost seems to be the volume of production per well. The large companies as a group have the more productive wells and show the lowest average costs.

(7) There was a great increase in the costs of production of crude petroleum between 1914 and 1919 for all classes of companies; there was also a marked increase in the cost of transportation by pipe line and in the cost of refining.

(8) The profits of the crude petroleum industry of California were comparatively low in 1914 and 1915, but they were unusually large

in 1918 and 1919. This increase in the average rate of earnings resulted from a great advance in crude petroleum prices. While the average rates of earnings from the crude-petroleum business in the later years were large, the fact that there was a scarcity of crude, resulting from a steady growth in demand, appears to afford an adequate economic explanation of the increase in prices and earnings.

(9) With respect to gasoline, kerosene, fuel oil, and other products of crude petroleum, the factors affecting prices were more complex and conclusions as to their reasonableness are reserved to the second part of this report, which deals particularly with such prices.

(10) The earnings of the five large integrated companies, namely, the Standard Oil Co. (California), the Union Oil Co. of California, the Associated Oil Co., the Shell Co. of California, and the General Petroleum Corporation, which are engaged in crude petroleum production, pipe-line transportation, refining, and marketing of gasoline, fuel oil, and other petroleum products, and which are the dominating factors in this industry on the Pacific coast, were generally low in 1914 and 1915, but they all show either very good or very high rates of earnings in 1918 and the first half of 1919.

(11) Data regarding the results of the petroleum industry for the whole country for the entire year 1919 indicate that the situation as to profits in the California petroleum industry was not exceptional compared with other sections of the United States in that year.

(12) While the petroleum shortage of 1919 and the first part of 1920 seems to have been temporarily met, both on the Pacific coast and in the United States as a whole, the problem of an adequate petroleum supply for the future does not appear to be fully solved and the Commission reiterates certain recommendations which it made in a report to the House of Representatives on June 1, 1920, namely, (*a*) that the active support of the Government be given to those engaged in the oil industry to develop production in foreign countries; (*b*) that methods of drilling for petroleum and the utilization of petroleum products and their substitutes should be a subject of special study in technological and economic aspects with a view to conserving the supply; (*c*) that the great importance of information regarding changes in industrial and commercial conditions in the oil trade suggests the need of making provision for having such information currently collected and reported for the use of Congress, the public, and the industry.

Respectfully,

HUSTON THOMPSON, *Chairman.*
NELSON B. GASKILL.
JOHN GARLAND POLLARD.
VICTOR MURDOCK.
JOHN F. NUGENT.

SUMMARY.

ORIGIN AND SCOPE.

This Report on the Pacific Coast Petroleum Industry is made in compliance with Senate resolution 188, Sixty-sixth Congress, first session. This resolution directed the Commission to ascertain the causes for the advance in the market prices of the principal petroleum products in the United States, and especially such advances in the Pacific coast territory; to report the sources of supply of crude petroleum for the United States, and particularly for the Pacific coast; to show the corporate or other agencies which produce, refine, and market the crude petroleum and its products, giving particular attention to those activities of the Standard Oil Co. (California), the Union Oil Co. of California, the General Petroleum Corporation, and other companies engaged in the various branches of the petroleum business of the Pacific coast; to ascertain the profits of said business; and to determine whether combinations in restraint of trade exist between those engaged in the various branches of the petroleum business of that section; and, if such combinations have existed or exist at the present time, to state what effect, if any, they have had upon the market prices of petroleum products, and to report the results to Congress. The resolution specified that particular attention be given to the period 1914–1919.

The present part of this report (Pt. I—Production, Ownership, and Profits) deals with the supply of crude petroleum for the Pacific coast territory and for the United States; discusses the effects of the withdrawal of oil lands from disposition under the mineral land laws upon the production of crude petroleum in the State of California; describes the organization, affiliations, investments, and earnings of the large interests that dominate the petroleum business of the entire Pacific coast; presents in detail the investments, costs, and earnings for the production, transportation, and refining of petroleum; and, for the purpose of comparison, gives a general survey of the profitableness of the producing and refining branches of the petroleum industry of the entire country for the year 1919. The second part of this report will discuss the prices of crude petroleum, of fuel oil, and refined petroleum products in the principal markets on the Pacific coast, the methods of distribution and of marketing such products, and the conditions of competition in the entire Pacific coast territory.

PETROLEUM SUPPLY.

The supply of crude petroleum for the United States is almost entirely obtained from two sources—first, from the production of its own oil fields; and, secondly, from imports, which are almost entirely secured from Mexico. The production of the United States was

443,402,000 barrels in 1920, while the net imports of crude petroleum—i. e., imports less exports—amounted to 97,418,000 barrels, or 18 per cent of the crude petroleum consumed in the United States in that year. While the United States has been securing increasing quantities of crude petroleum by importation, it has exported very large quantities of refined products. The net exports of refined products—i. e., exports less imports—were 64,464,000 barrels in 1920. Prior to 1920 the net quantity exported as refined products exceeded the net imports, but in 1920 for the first time there was an excess of net imports, namely, 32,954,000 barrels, if bunker fuel oil be not considered. In recent years there has been a very rapid growth in the quantities of fuel oil laden on vessels engaged in foreign trade, which in 1920 amounted to 26,335,000 barrels. Doubtless a considerable proportion of these totals was used by vessels flying the flag of a foreign nation and really constitute export shipments. Hence, even in 1920 the United States probably exported almost as large quantities of petroleum products as it imported in the form of crude petroleum.

The entire Pacific coast territory has during the period 1914–1920 secured its supply of crude petroleum and fuel oil from the State of California, and such refined products as gasoline and kerosene have generally been obtained from the same source of supply. In the latter part of 1919 and during the first three quarters of 1920 a shortage of gasoline occurred, during which time refiners and marketers in the Wyoming, Mid-Continent, and Mexican oil fields were drawn upon for quite large supplies to supplement the production of California. The large increase in the production of crude petroleum in California, which began the latter part of 1920 and has continued through the early part of 1921, promises to again enable California to supply the demand for the entire Pacific coast territory.

PRODUCTION OF CRUDE PETROLEUM.

In 1909 large areas of oil lands in California and other States were temporarily withdrawn from disposition under the public land mineral laws. The main reasons for the withdrawal of these lands were to preserve the oil lands from disposition under the placer mining law pending the enactment of legislation by Congress providing for a more satisfactory method of mineral-land administration, to reserve a supply for the Navy, and to prevent overproduction and the consequent waste of crude petroleum. The withdrawal had only a slight effect in checking the development of oil lands in California for the first five years, as there continued to be an overproduction of crude petroleum in that State from 1910 to the middle of 1915. The withdrawal, therefore, did not adversely affect the California oil industry during that period, but was rather a means of preventing a greater overproduction than would have been the case, and lessened the waste due to storage to some extent. Since June, 1915, however, the withdrawals apparently had some effect in lessening production. The opening up of the withdrawn lands during 1921 under the recently enacted mineral land leasing law is expected to lead to an increase in the annual production of crude petroleum in California, if there is no diminution in demand.

California has produced a larger aggregate quantity of crude petroleum than any other single State, and during recent years it has ranked either first or second in the quantity of its annual production. In 1920 it produced 105,721,000 barrels, which is its largest annual production up to the present time, and constituted 23.8 per cent of the total output of the United States. There was an overproduction of crude petroleum in California from 1910 to the middle of 1915 and large quantities were placed in storage. Beginning in 1915 and continuing through 1920 the annual consumption of California crude petroleum has exceeded its annual production. Even with the record of 105,721,000 barrels in 1920, consumption exceeded production by about 8,240,000 barrels. At the present time, 1921, due to the discovery of new oil pools and the resumption of development of "withdrawn" lands, production has been increased to such an extent that, should the present rates of production and consumption be maintained, the 1921 output will again exceed consumption.

California crude petroleum generally contains a much smaller gasoline content than that produced in other oil fields of this country, and a considerable percentage of the crude petroleum is sold directly for fuel purposes. In recent years, however, the proportion of lighter gravity crude petroleum, which contains a higher gasoline content, has increased, namely, from 45 per cent in 1910 to 69 per cent in 1914, since which time its proportion has fluctuated from 65 to 68 per cent. This increase makes it possible to obtain a larger percentage of gasoline, but it lessens the proportion of fuel oil. An adequate supply of petroleum is more important for the Pacific coast than for any other section of the country, as it constitutes the main or only source of fuel for heating purposes, marine and river navigation, public utilities, railways, and for mining and manufacturing industries. Even its dependence upon gasoline and other motor fuels is greater than in any other section for use by the agricultural and horticultural industries. California supplies most of the industries of Arizona, California, Nevada, Oregon, and Washington with fuel and refined products. The absence of an adequate supply and the relatively high price of coal make fuel oil a very important factor in the entire Pacific coast region.

CONTROL OF THE INDUSTRY.

Every branch of the petroleum industry from the ownership of oil lands to the distribution of refined products is controlled by a few large interests. In the ownership of oil lands and the production of crude petroleum there are seven large interests, namely, the Union Oil Co. of California, the Associated Oil Co.-Southern Pacific interests, the Standard Oil Co. (California), the Shell Co. of California, the General Petroleum Corporation, the Doheny companies, and the Santa Fe Railway.

The seven large interests named above owned 68 per cent of the proven oil lands in California on March 1, 1920, while in 1919, according to the California State Mining Bureau, there were 345 different concerns engaged in the business of producing crude petroleum. In that same year these seven interests produced practically 71.5 per cent of all the crude petroleum production of the State. Three of these, namely, the Associated Oil Co.-Southern Pacific inter-

ests, the Standard Oil Co. (California), and the Union Oil Co. of California, owned 51.5 per cent of the proven oil lands and produced 52 per cent of the State's total production; while these three interests, together with the Shell Co. of California and the General Petroleum Corporation, own 58.5 per cent of the proven oil lands and produced 62 per cent of the 1919 production.

Five large companies, viz, the Standard Oil Co. (California), the Union Oil Co. of California, the Associated Oil Co., the Shell Co. of California, and the General Petroleum Corporation, are the only important factors in the transportation of crude petroleum by pipe line and tank steamers, in petroleum refining, and in the distribution and marketing of petroleum products in the Pacific coast territory. These large interests own and operate practically all of the trunk pipe lines in California. Prior to 1914 the pipe-line capacity was at times not sufficient to transport the current production, but from 1914 to 1920 the carrying capacity of the pipe lines has greatly exceeded the current production. These same interests own almost 94 per cent of the fixed investment in petroleum refineries, 89 per cent of the rated daily refining capacity, and in 1919 refined 91 per cent of all the crude petroleum consumed by refineries in California.

COST OF CRUDE PETROLEUM.

This report shows in detail the cost of producing crude petroleum for 96 companies in 1914 and for 119 companies in 1919. In 1914 the costs cover 57.7 per cent of the total production of California, while for the first half of 1919 they include 81.2 per cent. The cost of producing crude petroleum increased gradually each year from 1914 to 1919. For all companies combined the average cost was 27.4 cents per barrel in 1914 and 46.3 cents per barrel in 1919, which is an increase in average cost of 69 per cent. The detailed cost statements show the total cost divided into its chief elements, namely, lifting expense, general and administrative expense, depreciation, and depletion. The lifting expense includes all expenses incurred in raising the crude petroleum from the oil wells and delivering it into the producers' receiving tanks. In the case of flowing wells this expense is very low per barrel, while for very deep wells which require pumping and yield a small production this expense is large. For example, in 1914 one company having flowing wells shows a lifting cost of only 1 cent per barrel, while another company, whose wells required pumping, shows a lifting cost of $0.72. The first company had an average production of 915,500 barrels per well for the year, while the second produced only 3,300 barrels per well.

As a rule the companies having the largest annual production show the lowest cost of producing crude petroleum. The companies producing over 1,000,000 barrels per year show an average cost of $0.245 per barrel in 1914 and $0.425 in 1919; companies producing from 250,000 barrels to 1,000,000 barrels had an average cost of $0.286 per barrel in 1914 and $0.499 in 1919; the average cost for companies producing from 50,000 to 250,000 barrels per year was $0.493 per barrel in 1914 and $0.749 per barrel in 1919; while the producers which had an annual production of under 50,000 barrels produced at an average cost of $0.721 per barrel in 1914 and $1.212 per barrel in 1919. Some small companies, however, had very low costs.

The chief factor affecting cost appears to be the volume of production per well, but the cost of drilling wells and the cost of investment in oil lands, which affects the amount of depreciation and depletion, is sometimes an important factor. In 1914, for example, companies producing 100,000 barrels per well or over show an average cost of $0.034 per barrel, while those producing under 5,000 barrels per well had an average cost of $0.473 per barrel. In the first case the lifting cost was only $0.017 per barrel, while for the companies having the smallest production per well it was more than eight times as large.

There is a very wide range in the costs for individual companies. In 1914 the lowest cost per barrel was $0.031, and the highest sixty-three times as great, or $1.96; while in 1918, the last complete year for which costs are shown, the range was from $0.14 per barrel to $5.36. Neither the very low nor the excessively high costs are representative. The lowest cost in 1914 was due to a very large production from flowing wells, while the abnormally high cost in 1918 was the result of a small production for that year for a company having a very large investment, which resulted in a very high cost per barrel for depletion. Some of the companies showing very low costs in one year had relatively high costs in other years, and the same is true for companies having very high costs. While in 1918 the cost of producing crude petroleum for individual companies ranged from $0.14 to $5.36 per barrel, 55 per cent of the total production covered by the report was produced by 20 companies at a cost not exceeding $0.42 per barrel, slightly more than 89 per cent was produced by 40 companies at a cost of not more than $0.568 per barrel, and the cost of only 3 per cent of this production, representing the output of 41 small companies, exceeded $1 per barrel. For different fields there are wide differences in the average costs.

EARNINGS FROM PETROLEUM PRODUCTION.

The crude-petroleum industry is consequently one of very variable returns. In each year from 1914 to 1918 there were many companies whose costs were in excess of the prices at which they sold their crude petroleum. Thus, out of the 96 companies reporting in 1914, there were 47 companies which lost money, and out of the 134 companies reporting in 1918 there were 28 companies which showed a loss. In each case, however, the production affected was comparatively small; thus 17.9 per cent in 1914 and 1.6 per cent in 1918 of the total quantity reported was produced at a loss. The very speculative character of crude-petroleum production for companies beginning operations or for companies without a large established production is made clear by the detailed figures given in the report.

This part of the report shows the earnings for the producing, pipe-line, and refining and marketing branches of the petroleum business of the Pacific coast. The investment used in the determination of the rate of earnings for the petroleum business includes all the capital employed in such business, including bond issues and other borrowed money, while the earnings include only the income from the petroleum business before deducting interest and Federal taxes. The rate of earnings for the first half of 1919 is shown on an annual basis.

Departmental earnings are shown for the five large integrated companies for their producing, pipe-line, and refinery and marketing

departments. In most cases statements were furnished by the companies showing such earnings. Departmental earnings are always more or less arbitrary and are of interest only in determining the relative profitableness of the different departments of the business and for purposes of comparison with companies engaged in only a single branch of the industry. In the case of the large integrated companies for both the crude-petroleum producing and pipe-line departments there is no question as to the basis of determining the earnings; for the producing department the current market price of crude petroleum at the producer's tank in the oil fields was used, while pipe-line transportation earnings were computed on the basis of the published tariff charges.

Taking only companies engaged exclusively in the production of crude petroleum, the average profit on investment was 7.2 per cent in 1914 and 20.3 per cent in 1919. If the crude petroleum-producing departments of the large integrated companies were put on a basis of selling their product at the market prices, the rate of earnings would have been 8.2 per cent in 1914 and 32.2 per cent in 1919, and the average profit combined with that of other producers reporting would amount to only 7.6 per cent for 1914 and 26.7 per cent for 1919. As shown above, the average rate of earnings was low in 1914. In that year 47 companies, representing almost 43 per cent of the net investment and producing about 18 per cent of the output covered for that year, show a loss, while about 32 per cent of the net investment and 27 per cent of the production show average earnings of only 4.5 per cent, and only 20 companies, owning about 25 per cent of the net investment and producing 55 per cent of the production, earned in excess of 10 per cent. The following year was even less profitable. The depressed condition of crude petroleum producing business in these two years was the result of the large overproduction, which lasted until about the middle of 1915. Beginning with 1916 there was a marked improvement, which continued throughout the remainder of the period. The largest earnings are shown for the first half of 1919, when there were 21 companies, with only 1.2 per cent of the net production and owning 3.9 per cent of the net investment, that show a loss, while 68 companies, with slightly more than 83 per cent of the net investment and 95 per cent of the production, earned in excess of 10 per cent. For the five and one-half year period an average of 43 companies, owning almost 20 per cent of the net investment and producing 9 per cent of the production, show a loss, while companies owning 57.7 per cent of the investment, producing 74 per cent of the production, earned in excess of 10 per cent.

PIPE-LINE TRANSPORTATION.

Five large interests, viz, the Standard Oil Co. (California), the Associated Oil Co., the Union Oil Co. of California, the General Petroleum Corporation, and the Shell Co. of California either own directly or through subsidiaries practically all of the trunk pipe-line mileage of the State of California. The combined mileage of their trunk pipe lines aggregate about 2,450 miles and with a gross investment of almost $50,000,000. Their rated daily capacity is about 380,000 barrels, which is sufficient to transport 138,700,000 barrels annually, or 33,000,000 in excess of the 1920 production for the State.

The cost of constructing trunk pipe lines is greater in California than in other sections of the country. For example, an 8-inch pipe line built in California in 1915 cost about $18,800 per mile, while the same size of line in the Mid-Continent field would have cost about $10,250.[1] This higher cost of construction is partly due to the fact that it is necessary to equip the pipe lines in California with heating facilities, which are used to raise the temperature of the crude to about 150° in order to facilitate its flow through the lines, and partly to the necessity of placing the trunk pipe-line pumping stations about 15 miles apart as compared with approximately 40 miles in the Mid-Continent field.

The costs of transporting crude petroleum by pipe line, according to information furnished by the companies, increased for most companies. The costs for shipment from the San Joaquin Valley fields to San Francisco Bay points increased from $0.142 per barrel in 1914 to $0.213 for the first half of 1919 for one company, while another company shows an increase from $0.115 to $0.221 for the same years; this represents an increase of about 50 per cent for one company and almost 100 per cent for the other.

All of the pipe lines from the California oil fields are intrastate lines, hence they were not made common carriers by the Hepburn Act placing interstate pipe lines under the jurisdiction of the Interstate Commerce Commission. However, the State of California in 1913 enacted legislation declaring pipe lines common carriers. Some of the pipe-line companies voluntarily filed tariffs with the State railway commission. While two companies contested the jurisdiction of the State railway commission, one was judicially held to be a common carrier and the other a private carrier and not subject to the jurisdiction of the railway commission.

The pipe-line rates that have been named by the companies filing tariffs originally conformed closely to the railroad rates and disregarded entirely the cost of the service plus a reasonable return on the investment in the pipe-line properties. Rates from the different San Joaquin Valley fields to San Francisco Bay points are now 35 cents per barrel for distances ranging from about 200 to 300 miles, while the rates for short distances, for example, about 30 miles, range from 8 to 10 cents per barrel. Since the pipe-line companies have not transported crude petroleum as common carriers, except in the case of a subsidiary, which has transported only for the parent company, the rates have been of interest only to the different departments of the five large companies.

The rates of earnings for the pipe-line departments of the large integrated companies as reported by them have generally been higher than for other departments. The different companies have credited their pipe-line departments with earnings at the published tariff rates. The Standard Oil Co. (California) shows rates of earnings on the net investment of the pipe-line department varying from 25.2 per cent in 1914 to 22.6 per cent for the first half of 1919, with a maximum rate of earnings of 70.8 per cent in 1917. The average for the period was 40 per cent. The rates of earnings for the Associated Oil Co.'s subsidiary pipe lines decreased from 31.1 per cent in

[1] Federal Trade Commission, Report on Pipe Line Transportation of Petroleum, pp. 85 and 99.

1914 to 12.1 per cent in 1919, with a maximum of 41.7 per cent in 1915 and an average of 29.2 per cent. The Union Oil Co. of California shows earnings ranging from 11.1 per cent in 1915 to 11.3 per cent in 1919, with a maximum of 18.8 per cent in 1916 and an average for the period of 9 per cent. The Shell Co. of California took over the pipe lines of the Valley Pipe Line Co. in 1917. Its rate of earnings for 1918 was 30.1 per cent, for the first half of 1919 it was 35.9 per cent, while the average for the period was 32 per cent. The General Pipe Line Co., which is controlled by the General Petroleum Corporation, earned 18.6 per cent in 1916 and 14.9 per cent in 1917, while a loss of eight-tenths of 1 per cent is shown for 1918, and a loss of 6.8 per cent for the first half of 1919 with an average rate of profit of 6.7 per cent. This unfavorable showing in the last two years was doubtless due to the small volume of crude petroleum transported as the result of the exchanges of large quantities of crude petroleum in the San Joaquin Valley fields for crude produced in the Whittier-Fullerton field. The pipe-line earnings for the large companies have generally declined during the period 1914–June 30, 1919, which is due to the fact that the rates except in one case remained constant while the cost of operation increased.

COST OF REFINING.

Five companies, viz, the Standard Oil Co. (California), the Union Oil Co. of California, the Associated Oil Co., the Shell Co. of California, and the General Petroleum Corporation, at the end of 1919 owned and operated 15 refineries representing a gross investment of $47,000,000, out of a total for the State of $50,000,000. These refineries had in 1919 a rated daily capacity of almost 275,000 barrels out of a total of about 308,000 barrels and refined 66,445,000 barrels of the State's total of 72,618,000 barrels. In other words, these five companies owned 94 per cent of the gross investment in refineries, operated 89 per cent of the rated daily refining capacity, and in 1919 consumed 91 per cent of the crude petroleum refined.

As already stated, California crude petroleum yields a smaller percentage of gasoline and naphtha than is generally secured from the crude petroleum produced in other fields, but in recent years the percentage obtained has increased considerably. From 1916–1920 the proportion obtained has increased from 11.7 to 15.4 per cent. This increase was partly due to the larger percentage of light refinable crude petroleum produced in California, which increased from 65 per cent in 1916 to about 70 per cent in 1920, and partly to the efforts of the large refiners to increase the gasoline and naphtha yields through the use of the Burton process and other improved methods of refining. The effect of both of these factors has been somewhat obscured, however, by the practice of refining heavier crudes than formerly; these heavier crudes yield a very small proportion of gasoline and naphtha.

The cost of refining crude petroleum is shown in detail for the five companies named above for the period 1916–June 30, 1919, and for two of the companies from 1914 to the latter date. The cost of refining a barrel of crude petroleum, including the cost of the crude, for all companies combined increased from $0.738 per barrel in 1916 to $1.259 for the first half of 1919; this represents an increase of 71 per cent. The crude petroleum costs are taken at the actual cost of

production, if produced, or at purchase price, if bought. There was a wide range in the costs for individual companies. In 1916 the lowest cost for a particular company was $0.602 and the highest $0.845, which represents a difference of $0.243, or 40 per cent, while in 1919 the lowest cost was $0.95 and the highest $1.631, which gives a difference of $0.681, or 71.7 per cent. The companies showing high costs are those purchasing a large proportion of the crude petroleum they refine.

The principal element of cost for a barrel of refined petroleum products is the raw material—crude petroleum—even when the crude is charged to the refinery at its cost of production plus transportation cost. On this basis the raw material represented 79.4 per cent of the total cost in 1914 and about 74 per cent in 1919. The refinery operating expense was about 13.5 per cent in 1914 and 17.7 per cent in 1919, while the general and administrative and depreciation combined were 7.1 per cent in 1914 and 8.3 per cent in 1919. The refining labor cost is a very small factor in the cost of a barrel of refined petroleum products, and during the period covered it varied from only $0.012 in 1914 to $0.046 in 1919.

The advantages possessed by the large integrated companies over companies engaged in refining only is made apparent by a comparison of the combined integrated costs shown for the five large companies, i. e., crude charged to their refineries at actual producing and pipe-line transportation cost, with costs computed on the basis of crude petroleum at the current market prices in the oil fields, plus transportation charges at published tariff rates. For all companies for which costs are shown their cost of refining a barrel of crude petroleum would have been $0.24 per barrel, or 32 per cent higher in 1914, had they not owned crude petroleum production and pipe lines; while in 1919 it would have been $0.69 per barrel, or 55 per cent greater. Hence it is evident that it is practically impossible for a refiner without low-cost petroleum production and pipe lines, unless the refinery is near the oil field, to become an important factor in the petroleum industry in California.

EARNINGS FROM REFINING AND MARKETING.

Earnings statements for the refining and marketing departments of three of the large integrated companies were prepared by the companies on the basis of charging the crude petroleum to the refineries at its current market price, including pipe-line transportation charges at published tariff rates, while the Commission has computed earnings on the same basis for one of the other companies in order to secure comparable results. This results in showing larger profits for the pipe line and production departments and correspondingly lower profits for refining and marketing. No departmental earnings are presented for the General Petroleum Corporation, because its refining and marketing activities are not comparable with those for other four companies, and such departmental earnings, if shown, would be misleading.

The departmental earnings on the net refining and marketing investment of the Standard Oil Co. (California) on the above basis varied from 4.4 per cent in 1914 to 18.1 per cent in 1919, while in 1918 it was 25.4 per cent. The average for the period 1914–June

30, 1919, was 10.5 per cent. The Union Oil Co. of California shows that earnings on its marketing and refining investment increased from 3.9 per cent in 1914 to 17.3 per cent in 1919. The average for this company for the five and one-half year period was 9.1 per cent. The Associated Oil Co. shows a loss on its refining and marketing investment ranging from 10 per cent in 1914 to 17.1 per cent in 1917, while beginning with 1918 there was a profit shown which amounted to 22.8 per cent for the first six months of 1919. This company shows an average loss of 3.4 per cent in these departments for the entire period. The Shell Co. of California shows very small profits on its investment in 1916 and 1917, while in 1918 there was a loss of 10 per cent, and for the period 1916–June 30, 1919, there was an average loss of 8.4 per cent.

The Standard Oil Co. (California) and the Union Oil Co. of California were well established in the refining and marketing field at the beginning of the period, and they show substantial earnings for their refining and marketing investment even when the crude petroleum which they produced is charged to the refinery at market price plus the pipe-line tariff rates. The Associated Oil Co. was essentially a producing and fuel oil marketing company prior to 1914. It built its principal refinery in 1913 and began marketing gasoline and other petroleum products about that time and had not become an important factor in these branches during the earlier years. The Shell Co. of California was organized in 1915 and began operating its first refinery during the latter part of December, 1915. It entered the marketing field during 1915, and, like the Associated Oil Co., it did not become an important factor in the refining and marketing branches of the petroleum business of the Pacific coast until during the last two years of the period. The losses shown for these two companies for their refining and marketing departments, on the basis of the produced crude at market price and all crude transported at the published tariff rates, illustrate the handicap encountered by a company not having crude production and pipe lines in attempting to establish itself in the refining and marketing branches of the industry.

EARNINGS OF LARGE COMPANIES.

The rates of earnings on investment for the five large integrated companies, including all of their activities in the petroleum business, are presented in this report in compliance with the resolution directing the investigation. The earnings for all of the activities of these companies in the petroleum business are the most significant figures, as a loss may be shown for one department and a large profit for another.

The investment used to show the company's earnings from the petroleum business only includes the capital stock, surplus, and funded debt, and excludes investments in affiliated and other companies; while the earnings are those shown before the deduction of interest on funded debt or of Federal taxes, and excludes interest and dividends received. For the Commission's revision all appreciation and deferred charges have been eliminated from investment, adjustments have been made in depreciation and depletion, and other minor items, such as incidental drilling, were capitalized, while the earnings were modified by the elimination of income from sources

outside of the petroleum business and depreciation and depletion adjustments were made to put these items on a uniform basis.

The earnings from the petroleum business, as shown by the records of the Standard Oil Co. (California), varied from 10.4 per cent in 1914 to 22.5 per cent in first half of 1919, with an average rate of earnings for the entire period of 17.4 per cent. The rate of earnings for the Union Oil Co. of California, as shown by its records, varied from 4.8 per cent in 1914 to 16 per cent in first half of 1919, with an average of 10.9 per cent for the entire period. The records of the Associated Oil Co. show a rate of earnings of 2.8 per cent in 1914 and 15.5 per cent in first half of 1919, the average rate for the period being 8.3 per cent. The General Petroleum Corporation's records show earnings of 4.4 per cent in 1916, 29.4 in 1918, and a loss of 0.5 per cent for the first half of 1919, while the average rate for the period was 15.7 per cent. The rate of earnings for the Shell Co. of California, as shown by its records, varied from one-tenth of 1 per cent in 1915 to 10.1 per cent in first half of 1919, while the average rate for the entire period was 3.9 per cent.

The Commission's revised rate of earnings from the petroleum business for the Standard Oil Co. (California) increased from 12.2 per cent in 1914 to 30.8 per cent in first half of 1919, with an average of 22.4 per cent for the period. The revised rate of earnings for the Union Oil Co. of California increased from 5.1 per cent in 1914 to 21 per cent in first half of 1919, with an average of 13.5 per cent. The Associated Oil Co. on revision shows an increase from 3.5 per cent in 1914 to 17.6 per cent in first half of 1919, with an average of 10.2 per cent. The Commission's revised earnings for the Shell Co. of California show a loss of 3.2 per cent in 1915 and a profit of 15.5 per per cent for the first half of 1919, with an average profit of 10.4 per cent. The General Petroleum Corporation earned 7.3 per cent in 1916 and 14.3 per cent for the first half of 1919, with a maximum of 37.9 per cent in 1918 and an average of 24.5 per cent for the period, according to the Commission's revision.

The Commission's revision shows that the rates of earnings for the five large integrated companies from the petroleum business were generally low in 1914 and 1915 or that some of them incurred losses, while beginning with 1916 there was generally a rapid increase until in 1918 and the first half of 1919 the rates of profit for each company were quite large.

The question of the reasonableness of prices for the various petroleum products will be discussed fully in Part II. However, in an industry such as the petroleum business, which produces a large number of different products, the reasonableness of prices can only be satisfactorily answered after the profits of the business have been ascertained. The price of a particular product, such as gasoline, may be advanced and appear unreasonably high without increasing the margin obtained by the refiner, if other products decline in price or costs increase without corresponding increases in the price of other products. As already pointed out, by far the most important element in the cost of a barrel of refined petroleum is the cost of the raw material—crude petroleum. During the period 1914–June 30, 1919, the price of crude petroleum in California advanced greatly, and at the present time, April, 1921, crude petroleum prices are still at the highest level ever attained. The rates of earnings for crude petro-

leum producing companies show clearly that the prices were not remunerative for a substantial proportion of the production in 1914 and 1915. In 1918 and 1919, however, such prices were advanced until this branch of the business so far as reported to the Commission, except for a small percentage of the production, was very profitable and the earnings increased from $0.17 to $0.79 per barrel. Apparently during the last half of 1919 and in 1920 this branch of the industry was also very profitable. Supply and demand conditions were such that high prices of crude petroleum appear to have been logical in order to stimulate to the utmost the production of crude petroleum.

EARNINGS FOR ENTIRE INDUSTRY.

For comparison with the foregoing data for the Pacific coast territory the following facts regarding the petroleum industry for the United States are of interest. This information was reported by the companies and was not checked with their records by representatives of the Commission, as was the case for the large companies already discussed. It was secured only for the year 1919 in connection with another inquiry in response to House resolution 501, Sixty-sixth Congress, second session, and was furnished by the companies in schedules prepared by the Commission. Fairly complete data were furnished for 82 producing companies and 138 refining companies.

A total production of 239,038,000 barrels of crude petroleum, or 63.3 per cent of the total production of 377,719,000 barrels for the United States as reported by the United States Geological Survey, was covered by these reports. Of this total reported, 224,190,000 barrels, or 59.4 per cent of the total production of the United States, was produced by 32 large companies and their subsidiaries, each of which produced over 1,000,000 barrels. These 32 companies, however, represent only 20 different interests; 9 companies are members of the Standard Oil group and the remaining 23 large independents. The 9 Standard companies produced 21.3 per cent of the total production of the United States in 1919, while the 23 large independents produced 38.1 per cent of the total. Most of these companies also refined crude oil or were closely affiliated with refining companies.

The crude-petroleum producing companies of the Standard Oil group produced 8.5 per cent of the total, while Standard companies which are also engaged in refining produced 12.8 per cent. The independent producing companies produced 6.7 per cent of the total, while the independent companies which also refined produced 31.4 per cent. For both Standard and independents the production was 15.2 per cent for producing companies and 44.2 per cent for those which also refined.

Companies belonging to the Standard Oil group owned 36.5 per cent of the total rated refining capacity of the United States in 1919 as reported by the Bureau of Mines, and they were operated at a higher percentage of their rated capacity than the independent refiners, as they refined 43.8 per cent of the total crude petroleum consumed by all refineries. The large independent refining companies reporting had a refining capacity of 43.3 per cent and consumed 41.1 per cent of the crude consumed.

The proportion of gasoline and naphtha secured from the crude petroleum from the principal oil fields east of the Rocky Mountains during 1919 was much higher than that secured in California. Refineries operating only on Appalachian crude show a yield of gasoline and naphtha of 27.4 per cent, those refining Mid-Continent crude had a yield of 27.9 and those for Wyoming obtained a yield of 22.2, while California refiners secured only 13 per cent. Refineries equipped with pressure stills secured much higher yields of gasoline and naphtha, those refining Mid-Continent crude secured 46 per cent, while from Wyoming crude 41 per cent was obtained.

The investments used to show the earnings from the petroleum business only include the capital stock, surplus, and funded debt, and exclude appreciation, the investments in affiliated and other companies, and also Government and other securities; while the earnings are those shown before the deduction of interest on funded debt or Federal taxes and exclude interest and dividends received.

On this basis the 82 companies reporting, which produced 62,162,000 barrels, showed an investment in the crude-petroleum business of $365,847,000 and earnings of $64,728,000, or a return of 17.7 per cent. A further analysis of the return from the crude-petroleum business for these 82 companies by profit groups discloses the fact that 14 of them with a production of 2.6 per cent of the total reported and an investment of 3.6 per cent showed an average loss of 2.8 per cent, while earnings of over 30 per cent are shown for 14 companies having 37.3 per cent of the production with only 15.1 per cent of the total investment. The average rate of earnings for these latter companies was 41.2 per cent, while the total for all groups was 17.7 per cent.

Of the 42 crude-petroleum companies operating in the Mid-Continent field, 6 companies with only seven-tenths of 1 per cent of the production and 1.3 per cent of the net investment showed a loss of 3.4 per cent. A profit of more than 30 per cent was shown by 8 companies with a production of 28 per cent of those reporting for this field but with an investment of only 4.8 per cent, the average rate of earnings for these 8 companies being 57.3 per cent. The average rate of earnings for the 42 companies reporting from the Mid-Continent field was 17.2 per cent, which is slightly lower than the average for all fields.

There were 138 petroleum-refining companies which submitted satisfactory reports. These covered a total crude consumption of 303,321,000 barrels or nearly 84 per cent of the total consumption for the entire country, as shown by the Bureau of Mines. These companies or affiliated interests produced 116,221,000 barrels of crude petroleum or 38.3 per cent of their refinery consumption. On a total investment of $2,088,283,000 they made a profit of $349,819,000 or an average of 16.8 per cent. The highest average rate was 27.6 per cent for 7 companies in the Rocky Mountain region with an investment of $59,887,000.

The average rate of earnings for these 138 companies on their investment in the domestic petroleum business alone averaged 20 per cent on an investment of $1,525,677,000 as against 16.8 per cent on their entire business. The refiners operating in the Rocky Mountain region on the same basis show an average rate of 32 per cent on an

investment of $48,040,000. Twenty-eight refiners consuming 3 per cent of the crude and having 1.9 per cent of the investment show an average loss of 8.5 per cent. Thirty-nine refiners with 18.7 per cent of the total net investment in the petroleum business and consuming 16.2 per cent of the crude petroleum refined by the companies reporting earned less than 10 per cent, with earnings of 5.9 per cent. There were 28 companies that earned profits of 30 per cent or over. This group refined 22.5 per cent of the crude petroleum, owned 22.2 per cent of the net investment, and showed an average rate of earnings of 34.9 per cent.

When these companies are grouped according to the magnitude of their investment in the domestic business, 5 companies with an investment of over $100,000,000 each, or a total of $722,023,000, showed an average rate of earnings of 24.6 per cent, while the lowest average rate of earnings is shown for the 31 companies with an investment of between $1,000,000 and $5,000,000. These companies have an aggregate net investment of $65,225,000 and show an average rate of earnings of 15.4 per cent. More than half of the 138 companies from which reports were obtained had an investment of less than $1,000,000 each. The aggregate net investment of these companies was $27,991,000, on which they earned an average of 17.3 per cent.

Small refiners in the Mid-Continent field claimed that they were making very small profits during 1919, particularly during the last six months of the year. The reports submitted agree with their claim, as shown by the results for 28 refiners in Oklahoma, which reported average earnings of 6.3 per cent on the petroleum business for the entire year.

During 1914 and the first half of 1915 there was an overproduction of crude petroleum for the entire country, and the prices for crude petroleum and refined products were very low. Profits in the producing branch of the industry for 1914 and 1915 east of the Rocky Mountains, as in California, were probably low. Beginning in the latter part of 1915 the prices of crude petroleum began to rise and were increased steadily, except for a decline for a few months in 1916, until they were stabilized by the industry in cooperation with the Fuel Administration in the spring of 1918. In the latter part of 1919 crude prices began to advance and the maximum general level was reached about the 1st of March, 1920. These maximum prices were maintained until January, 1921, from which time to April 1, 1921, they have been reduced about 50 per cent. It seems probable that the profits in the crude-petroleum industry generally increased from 1916, and that large profits were the rule in 1919 and 1920.

Data collected by the Commission, some of which have been published, show that for refiners generally throughout the entire country 1914 was a year of low profits. The year 1915 was a much more profitable one for refiners east of the Rocky Mountains than for those operating in California, although as in California the industry was more prosperous from 1916 to 1918. The year 1919 was also generally prosperous for the petroleum industry of the whole country except for refiners in the Mid-Continent field.

PACIFIC COAST PETROLEUM INDUSTRY.*

CHAPTER I.

ORIGIN AND SCOPE OF THE REPORT.

Section 1. Introduction.

RESOLUTION DIRECTING INVESTIGATION.—The investigation of certain features of the petroleum industry, with special reference to the Pacific coast, was directed by Senate resolution 138 (66th Cong., 1st sess.), introduced by Senator Poindexter, and passed by the United States Senate on July 31, 1919. The text of this resolution is as follows:

Resolved, That the Federal Trade Commission is hereby requested to investigate and report to the Senate the causes of recent advances in the market price in the United States, especially on the Pacific coast, of fuel oil, kerosene, gasoline, and other petroleum products, and in reporting the foregoing the said Commission is requested to take into consideration and report the sources of oil supply for the United States, and particularly for the Pacific coast; the annual production of the same for several years last past, with especial reference to the years 1914 to 1919, inclusive; the corporate or other agencies by which the business of oil production, oil refining, oil distribution, and oil marketing, including petroleum and all its products, is and has been conducted in the past and at the present time, with especial reference to the particular period mentioned above, and to these activities on the Pacific coast, and to the Standard Oil Company of California, the Union Oil Company, and the General Petroleum Co., and other companies engaged in this business, on the Pacific coast, and the profits of said business, and to report to the Senate what, if any, combinations in restraint of trade between those engaged in this business or unfair competition on the part of any of these or other agencies engaged in said business have existed during the said period or do exist at the present time, and if such combinations, restraint, or unfair competition have existed or do exist, what, if any, effect the same have had upon the market price of fuel oil, gasoline, and other petroleum products, especially on the Pacific coast and especially with reference to the price charged to the ultimate consumer of the same.

The language of the resolution directing the investigation covered by this report is very comprehensive and includes all phases of the petroleum industry of the entire country. The demand for the investigation grew out of increases in the price of gasoline, fuel oil, and other petroleum products on the Pacific coast, and in order to ascertain the facts regarding this situation the resolution specifies that particular attention be given to the petroleum industry of that section of the country, and that the operations of certain specified companies in California be carefully investigated. In harmony with the spirit of the resolution, the Commission has limited the intensive work of its inquiry to the petroleum industry of the Pacific coast, and more particularly to the operations of the companies named in the resolution, while a less intensive study has been made of the foreign sources of supply and of the general situation in the other oil fields of the country.

*Subsequent to the presentation of this report to Congress in manuscript, a few minor changes in text and figures were made in the copy submitted to the printer.

The facts developed in the course of this inquiry are being published in two parts.

SCOPE OF PART I.—Part I of this report covers the sources of supply of crude petroleum for the United States as a whole and for the Pacific coast; the effect on crude petroleum production in California of the withdrawal of oil lands from disposition under the mineral land laws; the organization, affiliations, investments, and earnings of the large integrated companies which occupy a dominating position in the petroleum industry of the entire Pacific coast territory; the cost of production of crude petroleum within the State of California; and a detailed study of the investments, cost of production, and earnings for the production, pipe-line transportation, and refining of crude petroleum for the period 1914–June 30, 1919; and for purposes of comparison a chapter is also devoted to a general survey of the profitableness of the producing and refining branches of the petroleum industry of the entire country in 1919.

In addition to this report the Commission has recently published two other reports on the petroleum industry; one, issued June 1, 1920, was made in response to House resolution 501, sixty-sixth Congress, second session, and discussed particularly the conditions in the petroleum industry east of the Rocky Mountain region,[1] while the other, issued January 3, 1921, is confined to a detailed study of the situation in the Rocky Mountain region.[2]

Section 2. Sources of information.

The information covering all of the important phases of the investigation, which was secured from the large companies, was obtained directly from their records or was prepared by them and carefully checked by examiners of the Commission. The work was greatly facilitated through the cooperation of the officials and employees of the large companies. The information secured from the smaller companies was largely furnished by them on schedules sent out by the Commission. In some cases examiners of the Commission assisted these companies in the preparation of the schedules. The smaller companies generally responded very promptly in furnishing the Commission with the desired information regarding their operations.

The statistical and general information regarding the petroleum industry was obtained from Federal and State bureaus and departments, such as the United States Geological Survey and Bureau of Mines, the California State Mining Bureau, reports of the California State Council of Defense, from the records of the Independent Oil Producers' Agency of Los Angeles, Calif., from the bulletins of the Standard Oil Co. (California), and from oil-trade journals.

[1] The Advance in Price of Petroleum Products.
[2] The Petroleum Industry of Wyoming.

CHAPTER II.

PETROLEUM SUPPLY OF THE UNITED STATES.

Section 1. Position of the United States in the petroleum industry.

POSITION IN THE WORLD INDUSTRY.—The United States has always held a commanding position in the petroleum industry of the world. It has excelled in the development of efficient methods of producing and transporting crude petroleum, in the development of refining methods, has generally maintained the leadership in the volume of its production of crude and refined products, and its trained geologists and practical oil men have had an important part in the development of oil fields in all parts of the world. The importance of the United States as a producer of crude petroleum is shown by the statistics of the world's production. Statistics showing the production by countries have been compiled by the United States Geological Survey for the period 1857–1919 and by the American Petroleum Institute for 1920. The total production from 1857–1920 and the estimated production for 1920 for all the principal crude-petroleum producing countries and the percentages produced by each country are shown in Table 1.

TABLE 1.—*World's production of crude petroleum, by countries, in barrels of 42 gallons, 1857–1920.*

Country.	1920[1]		1857–1920[2]	
	Barrels.	Per cent.	Barrels.	Per cent.
United States	443,402,000	64.40	5,428,892,719	62.15
Mexico	159,900,000	23.21	522,055,489	6.00
Russia	30,000,000	4.36	1,929,497,199	22.08
Dutch East Indies	16,000,000	2.32	210,816,643	2.52
India	8,300,000	1.21	125,307,265	1.41
Roumania	7,405,218	1.08	165,426,729	1.89
Persia	6,604,734	.96	27,072,767	.31
Poland (Galicia)	4,600,000	.67	166,105,273	1.90
Peru	2,760,000	.41	20,230,257	.24
Japan	2,213,625	.32	43,696,389	.49
Trinidad	1,526,527	.24	10,902,028	.12
Egypt	1,000,213	.15	7,435,749	.09
Argentina	1,300,000	.20	6,946,619	.08
Venezuela	500,000	.07	1,242,523	.01
France (Alsace)	700,000	.10	1,944,000	.01
Canada	220,000	.03	24,595,770	.29
Germany	215,940	.03	17,112,403	.20
Italy	35,000	.01	1,046,671	.01
Algeria			5,000	
Other countries			1,102,007	.01
Total	688,471,331	100.00	8,737,484,329	100.00

[1] American Petroleum Institute.
[2] United States Geological Survey, 1857–1919; American Petroleum Institute, 1920.

The United States has ranked first as a producer of crude petroleum among the countries of the world each year since 1857, except during the years 1898 to 1901, when Russia was first and it was second.

Mexico ranked third each year from 1911–1917, since which time it has been the second largest producer. The importance of the United States as a producer of crude petroleum is shown by its percentage of the total production since 1857. At the end of 1920 this country had produced over 62 per cent of the total; Russia, which ranked second, produced about 22 per cent; while the Mexican production, which was the third largest for the period, was only 6 per cent of the total.

In 1920 the United States produced 64.4 per cent of the world's total production; Mexico, which ranked second, produced 23.2 per cent, while Russia, the third largest producer, supplied only 4.4 per cent of the total. The production of Russia has been greatly curtailed since the early years of the World War, and the production in Mexico was restricted for several years prior to 1920 by the unsettled political conditions in that country.

FOREIGN TRADE IN CRUDE PETROLEUM.—The quantity of net imports, that is, imports less exports, of crude petroleum into the United States shows the supply obtained from foreign sources. During recent years the United States has consumed more crude petroleum than it has produced, while at the same time its exports of refined products have been very large. The growth of our net imports of crude petroleum is shown in Table 2.

TABLE 2.—*Net imports of crude petroleum into the United States, in barrels of 42 gallons, 1913–1920.*[1]

Year.	Net imports.	Percentage of net imports to total consumption.	Year.	Net imports.	Percentage of net imports to total consumption.
	Barrels.	*Per cent.*		*Barrels.*	*Per cent.*
1913	12,345,969	4.7	1917	26,008,919	6.7
1914	13,943,227	5.3	1918	22,834,918	8.0
1915	14,371,170	5.3	1919	46,802,916	11.1
1916	16,700,963	5.2	1920	97,418,197	18.5

[1] Compiled from Monthly Summary of Foreign Commerce of the United States, Bureau of Foreign and Domestic Commerce.

Appendix Table 1 shows the quantity of exports and imports of crude petroleum as well as the net imports and percentages of net imports to total consumption for the years 1913–1920.

Prior to July 1, 1912, the quantity of crude petroleum imported into the United States was not shown separately. Up to the end of 1920 imports of crude petroleum into the United States increased about 525 per cent, exports increased 89 per cent; while the net imports increased 689 per cent. The net imports in 1913 were equal to 4.7 per cent of the total available for consumption for that year, while those for 1920 equaled 18.5 per cent. The total imports of crude petroleum for 1920 were slightly larger than the total production of the State of California for the same year, while the net imports were 1,400,000 barrels larger than the production of the State of Texas. The importation of crude petroleum into the United States became important in 1917, and since that year the increase has been very rapid.

During the period 1915–1920 Mexico furnished from 96.4 per cent to 99.9 per cent of all the crude petroleum imported into the United States; while during the same period Canada has taken from 68.9 to 89.7 per cent of the crude petroleum exported. At the present time the exports of crude petroleum to Canada are almost all shipped from the Wyoming oil fields to Regina, Saskatchewan, by tank car, or from the Illinois and Indiana fields to Sarnia, Ontario, via pipe line. The exports of crude petroleum from the Pacific coast are very small.

As already pointed out, the rapid growth in imports of crude petroleum is almost entirely due to imports from Mexico, and it is expected that such imports will continue to increase. Data prepared by the Latin-American division of the United States Bureau of Foreign and Domestic Commerce show that in 1918, 17 out of 27 crude-oil producing companies in Mexico were owned by American oil interests and that these companies produced 73 per cent of the total production of Mexico for that year. In November, 1919, there were 305 oil wells with a reported potential daily production of 1,600,000 barrels, of which 200 wells, with a potential daily production of 1,300,000 barrels, were owned and operated by American interests.[3]

A large foreign supply of crude petroleum for the United States in the near future appears to be an imperative necessity. The latest estimates of well-informed geologists place the per cent of crude oil reserves within the United States as about 16 per cent of the world's total.[4]

FOREIGN TRADE IN REFINED PRODUCTS.—As shown in Appendix Table 1, the imports of crude petroleum are increasing very rapidly and in 1920 were about twelve times as large as the exports of crude petroleum. In contrast to this situation the exports of refined petroleum products from the United States are very important, while the imports of such products are almost negligible. In 1920 the exports of refined petroleum products were twenty-five times as large as the imports of such products.

The quantity of net exports of refined products from the United States, in barrels of 42 gallons, is shown in Table 3:

TABLE 3.—*Net exports of refined petroleum products from the United States, in barrels[a] of 42 gallons, 1913–1920.*[b]

Year.	Quantity.	Year.	Quantity.
	Barrels.		*Barrels.*
1913	46,652,213	1917	58,606,020
1914	50,720,494	1918	59,371,866
1915	52,039,841	1919	53,015,750
1916	56,919,594	1920	64,465,700

[a] The quantities of paraffin wax reported in pounds have been converted to barrels on the basis of 6½ pounds to the gallon.
[b] Compiled from Monthly Summary of Foreign Commerce of the United States, Bureau of Foreign and Domestic Commerce.

The quantity of imports, exports, and net exports of refined petroleum products in the United States, in barrels of 42 gallons, is shown in Appendix Table 2 for the period 1913–1920.

The year 1913 is the first full year for which imports of refined products are shown separately. The quantity of refined petroleum

[3] Latin-American Circular No. 74, Department of Commerce.
[4] See Advance in the Price of Petroleum Products, p. 22.

products imported into the United States is very small in comparison with the quantity exported. In 1915 domestic prices of kerosene and motor gasoline were low for the greater part of the year, and as a result the imports declined greatly.

The export trade in refined petroleum products is very large and the statistics show an increase of about 42 per cent in 1920 over 1913, while the increase in the net exports was 38 per cent. The very large totals for 1916, 1917, and 1918 resulted largely from the tremendous war demand for gasoline. The total for imports, exports, and net exports were higher during 1920 than in any previous year.

IMPORTS OF CRUDE PETROLEUM AND EXPORTS OF REFINED PRODUCTS.—As already pointed out, the quantity of crude petroleum imported into the United States during 1920 was about 12 times as large as crude oil exports, while the exports of refined petroleum products for the same year were over 25 times as large as the imports. A comparison of the net imports of crude petroleum and the net exports of refined petroleum products for the period 1913–1920 is shown in Table 4:

TABLE 4.—*Net imports of crude petroleum and net exports of refined products, in barrels of 42 gallons, 1913–1920.*

Year.	Net exports of refined products.	Net imports of crude petroleum.	Excess of net exports of refined products.
	Barrels.	*Barrels.*	*Barrels.*
1913	40,668,212	12,345,989	28,322,244
1914	50,720,404	13,942,227	36,777,297
1915	53,050,841	14,371,170	38,679,671
1916	58,919,384	16,709,963	42,209,421
1917	58,606,029	20,006,919	38,599,110
1918	59,371,899	32,834,918	26,536,973
1919	33,015,750	40,302,916	[1] 6,212,834
1920	64,483,700	97,418,197	[1] 32,934,497

[1] Excess of imports.

The excess of the net exports of refined petroleum products over the net imports of crude petroleum increased rapidly from 1913 to 1916, but in 1917 there was a decline, due to the large increase in the imports of crude petroleum from Mexico contemporaneously with a slight decrease in exports of refined products. This decline in net exports, which began in 1917, continued through 1920. In 1919 the net exports of refined products exceeded the net imports of crude petroleum by only 6,212,834 barrels, while in 1920 the imports of crude petroleum increased much more rapidly than the exports of refined products, and for the first time the net imports of crude petroleum exceeded the net exports of refined products, notwithstanding the fact that the net exports of refined products were much larger than for any previous year.

As shown in Appendix Tables 1 and 2, most of the exports of petroleum products from the United States are refined products. In the process of refining crude petroleum there is a considerable loss, which in 1920 averaged 4.3 per cent for the entire country. Hence the quantity of crude petroleum required to produce the quantities of refined products exported is somewhat larger than the totals shown in the above table. For example, it required 70,125,598 barrels of

crude oil to produce the 67,110,196 barrels of refined products exported in 1920.

In addition to the quantities of petroleum shown as exports, there are large quantities of fuel or bunker oil laden on vessels engaged in foreign trade. The totals reported below include fuel oil used by both American and foreign ships. The quantities of fuel oil laden on vessels engaged in foreign trade 1915–1920 are shown in Table 5.

TABLE 5.—*Fuel or bunker oil laden on vessels engaged in foreign trade, in barrels of 42 gallons, 1915–1920.*

Year.	Quantity.	Year.	Quantity.
	Barrels.		*Barrels.*
1915	3,565,805	1918	6,603,043
1916	4,529,787	1919	14,081,398
1917	5,908,319	1920	26,334,853

The total for 1920 is almost seven and one-half times as large as that for 1915. Doubtless a considerable proportion of the totals shown above were used by foreign vessels and really should be classified as export sales, so that even in 1920 the net imports of crude petroleum were not greatly in excess of the net exports of petroleum products.

PRESENT CONDITIONS OF SUPPLY AND DEMAND.—As already shown, prior to 1920 the United States has exported larger quantities of petroleum products than it has imported in the form of crude petroleum. During the period 1913–1920 the marketed production of the United States increased from 248,446,000 barrels to 443,402,000 barrels, or an increase of 78 per cent. During the same period the consumption of crude petroleum increased from 260,859,000 to 526,880,000 barrels, an increase of 102 per cent. During the first three years of the period production exceeded consumption and the quantity in storage increased, while for the three years beginning with 1917 the annual consumption was considerably larger than the production. In 1920 the domestic production and imports were much larger than in any previous year, and for the first time imports of crude slightly exceeded exports of petroleum products. As a result of this situation there was a slight increase in the quantity held in storage during 1920. Production has continued large during the early months of 1921, so that the petroleum shortage, which became acute in 1919 and the first part of 1920, seems to have been temporarily met, both on the Pacific coast and in the United States as a whole; however, the problem of an adequate petroleum supply for the future does not appear to be fully solved.

So far as the American petroleum industry is concerned, there is no doubt but that the leading factors will endeavor to extend their operations both in the United States and in foreign countries. In this connection it should be borne in mind that the United States to-day is dependent upon Mexican petroleum to meet the deficiency in its own supply, and that practically all of it comes from lands that are owned or controlled by Americans. However, in order to secure adequate concessions in foreign lands the industry needs the active support of the American Government.

Section 2. Position of California in the national petroleum industry.

PRODUCTION BY STATES.—California ranks first among all the States in the total quantity of crude petroleum produced from the beginning of the industry to the end of 1920, and it has ranked first or second in the quantity of its annual production of crude petroleum during recent years. Since the crude petroleum industry began in California that State has produced 24.3 per cent of the total production of the country, and during 1920 it produced 23.8 per cent of the country's total. The position of California with reference to the other crude petroleum producing States is shown in Appendix Table 3, which shows, by States, the total marketed production of crude petroleum, 1859–1908, and the annual production 1908–1920. The production and proportion of crude petroleum produced by States during 1920 and the total since 1859 are shown in the following table:

TABLE 6.—*Production of crude petroleum in the United States, by States, in barrels of 42 gallons, 1859–1920.*[1]

State.	1920		1859–1920	
	Barrels.	*Per cent.*	*Barrels.*	*Per cent.*
Oklahoma	105,725,000	23.8	1,041,650,267	19.2
California[2]	105,668,000	23.8	1,317,458,576	24.3
Texas	96,000,000	21.7	509,557,005	9.4
Kansas	38,501,000	8.7	218,243,488	4.0
Louisiana	35,649,000	8.0	201,993,911	3.7
Wyoming	17,071,000	3.9	70,469,573	1.3
Illinois	10,772,000	2.4	221,433,380	4.9
Kentucky and Tennessee	8,902,000	2.0	36,132,280	.7
Pennsylvania and New York	8,360,400	1.9	804,627,389	14.8
West Virginia	8,173,000	1.8	310,005,318	5.7
Ohio	7,412,000	1.7	477,867,154	8.8
Indiana	932,000	.2	107,967,464	2.0
Montana	336,000	.1	694,620	(3)
Colorado	110,000	(3)	11,579,370	.2
Miscellaneous			112,926	(3)
Total	443,402,000	100.0	5,429,692,719	100.0

[1] Compiled from statistics of U. S. Geological Survey.
[2] The Standard Oil Co. (California) shows a production of 105,721,196 barrels in 1920 and an accumulated production of 1,348,931,454 barrels (see Table 11, p. 56).
[3] Less than one-tenth of 1 per cent.

The statistics in the above table for the years prior to 1919, and also for 1920, were compiled from reports of the United States Geological Survey; while the 1919 figures are based on preliminary estimates of the Geological Survey, State reports, and trade-journal statistics. The United States Geological Survey has used the terms "production," "marketed production," and "petroleum marketed" to describe their annual statistics in different years. In their report for 1918 these terms are said to have the same meaning, and the Geological Survey states that the 1918 statistics, which were reported as crude petroleum production, included "runs to pipe lines from field sources and by shipments from wells by tank cars or wagons, including oil used for field development."[3] The data for 1920 include "the quantity of petroleum removed from producing properties." Oil consumed on leases and net changes in producers' storage are not included except for California.[4]

[3] U. S. Geological Survey, Petroleum, 1918, p. 971.
[4] U. S. Geological Survey, Preliminary Summary of Statistics of Crude Petroleum for 1920.

The States are arranged on the basis of their production in 1920. The first six States, viz, Oklahoma, California, Texas, Kansas, Louisiana, and Wyoming, produced almost 90 per cent of the total quantity of crude petroleum produced in the United States during 1920. California produced 23.8 per cent of the total production for 1920, and from the beginning of the industry to the end of 1920 it has produced 24.3 per cent of the total. In recent years the State of Oklahoma has competed with California for first place and its aggregate production is second, with 19.2 per cent of the total production from the beginning of the petroleum industry in this country to the end of 1920, and 23.8 per cent of the total production for 1920. These two States alone produced almost 48 per cent of the total quantity of crude petroleum produced in the United States for 1920. The 1920 production for several of the leading States has been greater than that for any previous year, while the production for other important States has been much larger than for 1919. The total production for the entire country, as shown by the preliminary reports of the United States Geological Survey, was about 66,000,000 barrels greater in 1920 than in 1919.

During recent years the United States has depended on the following States for the bulk of its production and for any increase in the quantity of crude-oil production, viz, California, Oklahoma, Texas, Kansas, Louisiana, Wyoming, and Kentucky. The production of California is discussed in detail in the following chapter. The following brief summary of the important developments, which have made possible the steady increase in the total production for the country during the last few years, shows the wide area in which producers of petroleum have been successful in extending old oil pools and in the development of new ones.

The State of Oklahoma became an important factor in the production of crude petroleum in 1908, in which year its production was greater than the total produced in that State for all previous years. This large increase was occasioned by the rapid development of the Glenn pool during 1907 and 1908. There was another large increase in the quantity produced beginning in 1913, resulting from the development of the Cushing pool, which was discovered in December 1912. In 1913 the production from the Cushing pool was greatly increased by deeper drilling, which struck a new oil-bearing sand and brought a flood of crude petroleum to the surface. During the period 1915–1918, and again in 1920, Oklahoma ranked first among the crude-oil producing States in volume of its annual production. Its maximum production up to the end of 1920 was reached in 1917, which was followed by a considerable decline in 1919, when it yielded leadership in the volume of production to California. In 1920, however, there was a marked increase in Oklahoma's production, and this State again became the largest producer with the production of 105,725,000 barrels, or 57,000 barrels more than that reported for California.

The State of Texas has forged to the front as a producer of crude petroleum during the past eight years. The large increase beginning in 1918 was the result of the development of the Ranger and the Burkburnett pools in northern Texas. The discovery well in the Ranger pool was completed in October, 1917, and since that time drilling operations have been very active. The maximum production from this pool was obtained in July, 1919, when the daily average production was about 73,000 barrels. During 1919 the Ranger pool

produced 22,379,665 barrels of crude petroleum. Since July, 1919, its production has declined until at the end of June, 1921, it was about 16,000 barrels per day. In 1918 the production in the Burkburnett pool was greatly increased and the largest production was obtained in August, 1919, when the daily average was about 92,000 barrels, in spite of the fact that many wells were shut in on account of the lack of facilities to enable the producers to market all of their production. The Burkburnett pool was credited with a production of 25,865,747 barrels in 1919, and together with the Ranger pool produced almost 62 per cent of the total for the entire State in that year. At the end of June, 1921, the Burkburnett pool was producing about 50,000 barrels per day. During the last half of 1920 the production of the State of Texas was greatly increased, and the production for 1920 was much larger than for any previous year, the preliminary estimates showing a total of about 96,000,000 barrels.

Compared with the year 1915, an enormous increase was made in Kansas in the three years following. This resulted from the discovery of a new prolific oil-producing pool in Butler County. Some of the new wells in this new pool had an initial capacity of 15,000 to 18,000 barrels per day. In 1918 the production for the State rose to 45,451,017 barrels, as compared with 2,823,487 barrels in 1915. In 1919 there was a sharp decline in production, but the preliminary figures for 1920 show an increase over the previous year.

The development of the Caddo pool in the northwestern part of the State of Louisiana in 1912 made this State an important factor in the production of crude petroleum. By 1915 an annual production of almost 18,200,000 barrels was recorded, while from 1916 to 1919 there was a temporary decline with the annual production fluctuating from 11,400,000 to 16,000,000. The development of the new Homer pool in Claiborne Parish in the northwestern part of the State and the new wells drilled in the Bull Bayou district in the early part of 1920 brought on an enormous flush production that added materially to the year's production. Preliminary figures for 1920 give the north Louisiana oil fields 33,896,000 barrels as compared with 13,575,000 barrels in 1919. Nearly 22,000,000 barrels of the 1920 total came from the Homer pool alone,[7] and at the end of June, 1921, its production was averaging about 36,000 barrels per day.[8] The preliminary estimates for 1920 place the Louisiana production at 35,650,000 barrels.

The production of crude petroleum in Wyoming, which is a high-grade light crude, has increased very rapidly during recent years. Its production first exceeded 1,000,000 barrels in 1912, while by 1918 it was more than 12,500,000 barrels, and during 1920 it increased to slightly more than 17,000,000 barrels.[9]

The State of Kentucky is the only State east of the Mississippi River that has increased its production to any appreciable extent in recent years. In 1915 the production of Kentucky had declined to 437,274 barrels. The discovery of new pools in the eastern part of the State in 1916 marked the beginning of extensive exploration and drilling operations in many other sections of the State, with the result that in 1919 the marketed production had increased to

[7] Oil and Gas Journal, Jan. 28, 1921, p. 16.
[8] American Petroleum Institute Bulletin 170.
[9] See Report of the Federal Trade Commission on the Petroleum Industry of Wyoming.

9,226,472 barrels.[18] This large increase not only made Kentucky the leading crude oil producing State in the Appalachian group but it also increased the production of this group, which had been declining, to practically the same quantity marketed in 1905. During 1920 the production of Kentucky and Tennessee declined from the record total of 9,226,472 barrels in 1919 to 8,692,600 barrels.

THE CALIFORNIA REFINING INDUSTRY.—On January 1, 1921, the rated daily capacity of petroleum refineries in the United States was 1,530,000 barrels of crude oil, while the refineries located in the State of California had a rated daily capacity of 310,320 barrels, or 20.27 per cent of the total refining capacity of the whole country. The crude petroleum produced east of the Rocky Mountains is practically all refined, while in California large quantities are consumed as fuel without refining. The actual refining operations as reported by the United States Bureau of Mines show the following results:

TABLE 7.—*Crude petroleum refined in California and the United States, in barrels of 42 gallons, 1916–1920.*

Year.	Total quantity refined in the United States.	Total quantity refined in California.	Percentage refined in California.
	Barrels.	*Barrels.*	*Per cent.*
1916	246,982,615	63,960,127	25.90
1917	301,219,218	77,949,725	24.21
1918	328,094,600	66,464,999	20.30
1919	301,520,153	72,953,052	20.17
1920	433,915,039	76,745,480	17.69

The California crude petroleum is a very heavy crude as compared with most of that produced east of the Rocky Mountains, and large quantities are consumed as fuel without being run through a refinery; hence the quantity refined each year is much smaller than the annual production. During 1920 there was an acute shortage of gasoline, and as a result the total quantity of crude petroleum refined in California increased about 5 per cent over 1919; at the same time the total for the entire country increased about 20 per cent. In recent years the proportion of the total production refined has increased from 68.6 per cent in 1916 to 72.6 per cent in 1920 for the State of California.

[18] Includes the marketed production of Tennessee, which is negligible.

CHAPTER III.

THE CALIFORNIA OIL FIELDS.

Section 1. Early development.

The petroleum pits in Brea Canyon, about 50 miles southeast of Los Angeles, which contained the bones of the saber-toothed tiger and other prehistoric animals of the Pleistocene epoch, were first discovered by sheep herders. The seepage from these deposits attracted the attention of the early inhabitants and was used as fuel and cement as early as 1856. The development of the petroleum industry in Pennsylvania, which began in 1859, led to investigations in California regarding the quality of the petroleum. Samples were obtained from seepages in Ventura County and elsewhere in 1865, and the reports based on an analysis of these samples were so favorable that drilling operations were undertaken in all parts of the State. Most of these efforts were failures, notwithstanding the fact that tests were made in several of what have since become the most productive oil regions of the State. Inexperience in drilling and primitive drilling apparatus were largely responsible for the failure to discover large petroleum deposits.

The first attempt in California to produce crude petroleum for commercial purposes was in 1864, when tunnels were run into the oil formations in Sulphur Mountain, in what is now Ventura County, and small quantities of crude petroleum were floated out on the water that came with it. The mixture was run into flumes and thence into wooden tanks. After the water settled and was withdrawn there remained a heavy grade of natural lubricating oil, which was used locally in its natural state for lubricating purposes.

The first production from oil wells in California was obtained in 1866 in the valley of the Santa Clara River in Ventura County. This district supplied nearly all the crude petroleum for the next 20 years, although some asphalt was mined in the McKittrick field in Kern County during this period. The drilling operations undertaken from 1864 to 1866 were abandoned on account of the high operating expenses and comparatively small quantities produced, and no further attempt was made to drill until 1875. This latter year may be considered the date of the first successful efforts to produce crude petroleum in commercial quantities. Late in 1875 the California Star Oil Works Co., of San Francisco, commenced drilling in Pico Canyon, Los Angeles County, about 8 miles west of the present town of Newhall. A good grade of light gravity crude petroleum was found in paying quantities at shallow depths of from 60 to 400 feet. This crude petroleum was hauled in barrels to a small refinery that was built at Lyons Station, about 9 miles from the wells. By 1878 the production of the Pico Canyon wells had increased to about 300 barrels per day.[1]

[1] Standard Oil Bulletin, May, 1913.

The total production in 1876 is given as 12,000 barrels for the entire State. Development began in the Puente Hills in the southeastern part of Los Angeles County in 1882, and in 1892 crude petroleum was discovered in the neighborhood of the city of Los Angeles, while development in the Coalinga field became active in 1896. The famous Blue Goose well in the Coalinga field and the discovery of crude petroleum in the Kern River field in 1899 speedily developed another speculative era, and as a result of intensive drilling in many counties crude petroleum was found in the Midway, Salt Lake, and Santa Maria fields and the older oil-producing areas were extended. In addition to the above districts, crude petroleum had also been found in Santa Clara, San Luis Obispo, and Monterey Counties.

Section 2. Producing area.

PROVEN ACREAGE.—There is apparently no close agreement as to what constitutes proven acreage in the California oil fields. For example, the Standard Oil Co. (California) in forwarding its statement to the Commission called attention to the fact that their statistics for proven acreage for the entire State of California for 1917 showed a total of 88,745 acres, while estimates by others ran as high as 110,000 acres. For the year 1917 the Standard Oil Co. in its reports gave the proven area of the Midway-Sunset field as 40,204 acres, while the committee on petroleum of the California State Council of Defense reported the area of these fields as about 56,500 acres. This latter estimate is apparently a high one, for in reporting the detailed estimates for this field they credit naval reserve No. 2, which is located in the Midway field, with 18,240 acres of proven territory, while the Navy Department places its proven area at 15,500 acres. The statistics compiled by the Standard Oil Co. are the only ones available giving the proven acreage of different fields. The California State Mining Bureau publishes annual statistics showing the proven acreage of oil lands in California by counties, but it does not give this acreage by fields. The total proven acreage for the entire State as reported by these two authorities are in substantial agreement. For example, in 1919 the State Mining Bureau gave the total proven area of the State as 91,792 acres, as compared with 92,087 acres reported by the Standard Oil Co.

The proven acreage of oil lands in California, the number of producing wells at the end of each year, the number of acres per well, and the quantity in barrels per acre, by fields, for the period 1914–1920, as reported by the Standard Oil Co. (California), are shown in Appendix Table 4. The total proven area for the State of California has increased from 81,365 on December 31, 1914, to 93,837 acres at the end of 1920. This represents an increase of about 15 per cent. During the same period the number of producing wells increased from 6,106 to 9,621, which is an increase of almost 56 per cent. The larger increase in the number of producing wells than in the proven acreage caused a decrease in the number of acres per well from 13.3 acres in 1914 to 9.8 acres at the end of 1920. The quantity of crude petroleum produced from each acre of the proven oil lands decreased from 1,274 barrels in 1914 to 1,127 barrels in 1920.

There is a wide variation in the number of acres per well and in the quantity produced per acre for the different fields, and also a marked change for certain fields during the period 1914–1920. In 1914 there were only 2.3 acres per well in the Summerland field as compared with 33.6 in the Santa Maria field; while in this same year the Ventura County and Newhall fields produced only 233 barrels per acre, as compared with 4,156 barrels for the Whittier-Fullerton field. By 1920 all of the fields had been more intensively developed and the number of acres per well ranged from 1.6 acres in the Summerland to 20.6 in the Santa Maria field, while the quantity produced per acre ranged from 239 barrels in the Summerland field to 4,497 barrels in the Whittier-Fullerton field.[2]

The statistics for the individual fields disclose some very interesting information. For example, the Ventura County-Newhall fields, which were the first oil fields developed in California, show an increase in the quantity produced per acre during the period from 233 barrels in 1914 to 425 barrels in 1920; the Kern River field shows an increase from 919 barrels per acre to 947 barrels; the Coalinga field, which is one of the oldest fields in the State, shows a decline from 1,106 barrels to 1,027 barrels per acre; while the Whittier-Fullerton field shows an increase from 4,156 barrels in 1914 to 4,497 barrels in 1920. (See p. 223.)

CONTROL OF OIL LANDS.—The necessity of ascertaining the facts regarding the degree of concentration and control of the oil lands of California by the large oil companies was recognized as of vital importance; hence the Commission requested the crude petroleum producing companies to furnish pertinent information thereon. The companies were asked to furnish information showing the acreage of producing and nonproducing lands held either in fee or under lease. Reports were obtained from 158 companies for the year ending December 31, 1918, but owing to difference of opinion as to what constituted producing property, the only data that was considered reliable was that showing the total acreage of oil land owned or leased by the companies reporting. Twenty-seven [3] of the 158 companies reporting were either owned or controlled by the seven large producing interests. The holdings of the large producing interests are shown separately in Table 8, which gives the acreage of land owned in fee, the acreage leased, and the percentage owned or leased by each group.

TABLE 8.—*Acreage of oil land reported by 158 companies, acreage and proportion owned or leased by seven large interests controlling 27 companies, Dec. 31, 1918.*

Owner.	Land owned in fee.		Land leased.		Total.	
	Acres.	Percentage.	Acres.	Percentage.	Acres.	Percentage.
Large producing interests	265,507	79.84	170,077	92.25	435,584	84.53
Other producers	64,617	20.16	14,035	7.75	78,652	15.47
Total	330,024	100.00	184,112	100.00	514,136	100.00

[2] Certain miscellaneous fields which had not proven to be important factors show a larger acreage per well and a smaller production per acre in both years.
[3] This number was increased to 29 in 1919.

These seven interests, named according to the size of their oil-land holdings as of December 31, 1919, are: The Union Oil Co. of California, the Standard Oil Co. (California), the Associated Oil Co.-Southern Pacific interests,[a] the Doheny companies, the General Petroleum Corporation, the Santa Fe Railway Co., and the Shell Co. of California. These interests owned 79.84 per cent of all the acreage reported by the 158 companies as owned in fee, and they controlled 92.25 per cent of the land held under lease, while their total holdings were 84.53 per cent of the total reported.

Data showing the total acreage of oil land owned in fee or held under lease were secured from the large producing interests for the year ending December 31, 1919. In addition, the acreage of proven oil land as reported by the California State Mining Bureau for these large interests and for all other crude petroleum producers was secured as of March 1, 1920. Table 9 shows the total acreage as reported by the seven large crude-oil producing interests, their proven acreage and the percentage of the total proven acreage owned by each of the large producing interests and that owned by other producers.

TABLE 9.—*Acreage of oil lands and acreage of proven oil lands held by the seven large interests, and the acreage of proven lands held by other producers.*

Interest.	Total oil lands Dec. 31, 1919.	Proven oil lands Mar. 1, 1920.	
		Acres.	Per cent.
	Acres.		
Union Oil Co. of California	286,417	9,184	10.0
Associated Oil Co.-Southern Pacific interests[a]	154,112	28,055	30.6
Standard Oil Co. (California)	95,413	10,087	10.9
Doheny Companies	30,332	4,761	5.2
General Petroleum Corporation	20,443	3,550	3.9
Santa Fe Railway Co.	15,970	4,043	4.4
Shell Co. of California	9,474	2,863	3.1
Total seven large interests	612,161	62,543	68.1
Other producers		29,280	31.9
Total		91,792	100.0

[a] Southern Pacific lands and control of Associated Oil Co. taken over by the Pacific Oil Co., Dec. 3, 1920.

The seven large producing interests shown above controlled on March 1, 1920, 68.1 per cent of the total proven area of the State of California, and in addition held a very large acreage which has not yet been proven or developed. At the end of 1919 the combined holdings of the same group of large producing interests had increased by 177,577 acres, or 40.9 per cent over their 1918 holdings, and their total acreage for 1919 exceeded the total reported by the 158 companies for 1918 by 98,025 acres.

Section 3. Main divisions of oil fields.

The California oil fields lie in the southern half of the State, and, with respect to their geographic location, are grouped in three main divisions, namely, the San Joaquin Valley, the Coastal, and the

[a] The Southern Pacific Co. controlled the Associated Oil Co. in 1919; in December, 1920, the Southern Pacific oil lands and control of the Associated were taken over by the Pacific Oil Co.

Southern. Each division includes a number of producing fields, the location of which is shown on the map opposite.

SAN JOAQUIN VALLEY DIVISION.—The San Joaquin Valley Division is located in the San Joaquin Valley. All of the oil fields which are included in this division lie in Fresno, Kings, and Kern Counties. At the present time almost 80 per cent of all the crude petroleum produced in the State of California is obtained from the San Joaquin Valley Division. This division includes the following important fields—named in the order of their production in 1920—Midway-Sunset, Coalinga, Kern River, Lost Hills-Belridge, and McKittrick. During 1920 the Elk Hills pool was developed.

The Midway-Sunset field is the most prolific oil-producing territory thus far developed in the State of California. This field lies in the southwestern part of Kern County and is about 30 miles southwest of the city of Bakersfield. This area really includes two fields, the Sunset and the Midway. The Sunset portion of the field was developed earliest, the first well being drilled in 1891, but its production did not become commercially important until 1900, when 12,500 barrels were produced. The maximum production was in 1914, when 12,546,615 barrels were produced. The Sunset field has an area of about 15 square miles. The wells vary in depth from 500 to 3,000 feet and the gravity of the crude varies from 11° to 26° Baumé.

The Midway field is the most prolific field thus far developed in California and is one of the most productive in the United States. The total area of the field is approximately 75 square miles. Development in this field began in 1900, and in 1914 the largest annual production of 37,479,228 barrels was recorded. The depth of the wells ranges from 400 feet to about 4,300 feet and the gravity varies from 13° to about 30° Baumé. The oil sands in the Midway-Sunset fields vary from 65 to 175 feet in thickness.

The Coalinga field is the second largest producing field in the San Joaquin Valley and the third most productive field in the whole State of California. This field is located in the southwestern part of Fresno and the northwestern part of Kings County, and it marks the northern limits of the present development of crude petroleum production in the State of California. The first successful well was drilled in 1890 and the maximum production of the field was reached in 1912, when 19,546,122 barrels were produced. Since 1912 the production has declined somewhat, but it is still important.

There is a very great range in the depth of the wells in this field. The shallower wells are only about 300 feet deep, while the deepest wells have reached a maximum of 4,700 feet. The oil sands vary from 10 to 450 feet in thickness, with an average of about 140 feet. The crude petroleum produced in this field varies greatly in the quality as indicated by a range of from 12.4° to 35.5° Baumé. Approximately 60 per cent of the production of this field is light crude.

The Kern River field is located in the central part of Kern County and lies in the low rolling hills at the foot of the Sierra Nevada Range on the eastern rim of the San Joaquin Valley, and is about 35 miles northeast of the Midway-Sunset fields. The Kern River field is the fourth most productive field in the entire State. The development of the Midway-Sunset fields and the Kern River field marked the beginning of California as an important factor in the world's produc-

NEVADA
CALIFORNIA
PACIFIC
RICHMOND
SAN FRANCISCO
MERCED
FRESNO
MONTEREY
COALINGA FIELD
LOST HILLS FIELD
BELRIDGE FIELD
KERN RIVER FIELD
BAKERSFIELD
McKITTRICK FIELD
MIDWAY-SUNSET FIELD
SAN LUIS OBISPO
PORT SAN LUIS
PORT HARFORD
Tulare Lake
Buena Vista Lake
Owens Lake
Dry Lake
MOJAVE

(To face page 46.)

tion of petroleum. The area of this field is over 12 square miles, and it has a proven area of 7,876 acres. The first well in this field was drilled in June, 1899, and its maximum production was reached in 1904, when 17,226,240 barrels were produced.

The depth of the wells in the Kern River field varies from 400 feet to more than 2,500 feet, with an average of approximately 900 feet. The oil-producing sands range in thickness from 200 to 500 feet, the average being about 300 feet. The crude petroleum produced in this field is very heavy, ranging from 10.4° to 17° Baumé, and is used mainly for fuel oil and in the manufacture of asphalt.

The McKittrick field is located in the western part of Kern County and lies between the Belridge field and the Midway-Sunset fields. It is a small field having an area of approximately 4 square miles with a proven area of about 1,670 acres. The first development of this field began about 1866, at which time operations were confined largely to the manufacture of asphalt. The first successful oil well was drilled in 1892, but the field did not assume great importance until 1898. The maximum production of 5,807,360 barrels was reached in 1909. The depth of the wells in the McKittrick field varies from about 400 feet to 3,982 feet. The crude is comparatively heavy, ranging from 12° to 24° Baumé.

The Lost Hills field is about 50 miles southeast of the Coalinga field, and is located in the western part of Kern County. The first well of importance was drilled in 1910, and since that time the field has been extended to a length of approximately 6 miles, with a width of from about 2,000 to 4,000 feet. The wells range in depth from 500 feet to 2,388 feet. Most of the crude petroleum production in this field is a light crude, the gravity ranging from 15° to as high as 38° Baumé. The production of the Lost Hills field has been combined with that of Belridge.

The Belridge field is located in Kern County and lies about midway between the Lost Hills and the McKittrick fields. In shape it is similar to the Lost Hills, having a width of from one-fourth to one-half mile and a length of about 3 miles. Its proven oil area and that of the Lost Hills field combined aggregates 5,026 acres, and the largest combined production of these two fields was in 1917, when 6,295,329 barrels were produced.

There is a great variation in the depth of the wells in the Belridge field. In the upper portion of the field they are very shallow, varying from 600 to 900 feet, while in the lower part some of the wells reach a depth of 4,000 feet. The quality of the crude petroleum in this field is similar to that produced in the Lost Hills field. About 68 per cent of the combined production of the two fields is classed as light crude.

An important pool was added to the San Joaquin Valley fields during 1920, when the Standard Oil Co. (California) and the Southern Pacific Co. developed important production in the Elk Hills pool. This field lies in the southwest part of Kern County, about 10 miles northeast of the town of Taft. The discovery well was brought in by the Standard Oil Co. February 12, 1920, on land which the company had owned for a number of years. The discovery well, which was a gusher, began producing about 3,000 barrels per day, which was soon increased to 6,000 barrels, and the latter rate was maintained throughout the larger part of 1920. Subsequent

to February 12, 1920, other wells were brought in by the Standard Oil Co. and also by the Southern Pacific Co. All of the wells drilled in this new pool during 1920 were gushers, and their initial production varied from 3,000 to 6,000 barrels per day. The production obtained from this new pool has contributed largely to the increase in the production for 1920 as compared with recent years, and to the State's record daily production of 839,000 barrels, which was attained during April, 1921.

COASTAL DIVISION.—The Coastal Division[1] includes the oil fields located in the counties of San Luis Obispo, Santa Barbara, and Ventura, which are situated along the California coast. In point of production this division ranks third, and its principal fields, in the order of the importance of their production, are the Santa Maria, Summerland, and Ventura County fields.

The Santa Maria field is located in the northern part of Santa Barbara County between the Santa Ynez and San Rafael Mountains. This field includes four smaller fields or pools, namely, the Cat Canyon, the Orcutt, the Casmalia, and the Lompoc. The Cat Canyon pool is an extension of the Santa Maria field to the east, while the Casmalia pool is an extension to the westward. The first successful well in the Santa Maria field was completed in August, 1901, in the Orcutt pool. The Lompoc pool was discovered in 1906 and lies between the other pools and the Pacific Ocean. In 1908 the first well was completed in the Cat Canyon pool, while the Casmalia extension was brought in during 1917. The proven area of the Santa Maria field is about 8,360 acres, and its maximum production was reached in 1908, when 8,699,350 barrels were produced.

The wells in these fields are comparatively deep. In the Orcutt pool they range from 2,000 feet to 4,000 feet; in the Cat Canyon, 2,400 feet to 3,200 feet; and in the Lompoc 2,500 feet to 4,400 feet in depth. There is a considerable range in the gravity of the crude. The crude petroleum produced in the Orcutt pool is comparatively light, the gravity ranging from 20° to 35° Baumé. The Cat Canyon crude petroleum is much heavier, ranging from 9° to 19° Baumé, while in the Lompoc pool the range is from 16° to 37° Baumé.

The Summerland field is situated on the shore of the Pacific Ocean, about 40 miles below the Santa Maria field and about 6 miles southeast of the city of Santa Barbara. This field is unique among the oil fields of the United States in that its production is largely secured from wells drilled in the Pacific Ocean, many having been drilled farther out than low tide. The field is very small, the proven area including only 230 acres. The first well was drilled in 1891, and the maximum production of only 208,370 barrels was recorded in 1899. The depth of the wells ranges from 80 feet to 600 feet. The crude petroleum produced in this field is very heavy, the gravity varying from 9° to 18° Baumé, with an average of about 14°. This crude is very viscous and is used principally for road dressing and for fuel oil.

The Ventura County fields consist of numerous small separated fields, or pools, which lie in the valley of the Santa Clara River. The Santa Clara River practically parallels the coast line for a distance of about 50 miles in an easterly direction from the Ojai Valley in Ventura County to the Newhall field in northern Los Angeles

[1] See Report of Committee on Petroleum, California State Council of Defense.

County. In Ventura County the wells on the north side of the Santa Clara River are largely situated in canyons among the very rough foothills of the San Rafael Mountains. The elevation of these hills varies from 1,200 to 2,800 feet above sea level, and many of the leases are accessible only with difficulty. The wells on the south side of the river are located far down the slope of the hills. The wells in the Newhall district are situated in several canyons in the higher part of the San Fernando Mountains. The elevation of the mountains in this region ranges from 1,300 to 1,700 feet above sea level. The principal production is obtained from Pico Canyon, Wiley Canyon, and Elsmere Canyon.

The Ventura County fields include the oldest oil-producing pools in California. The first oil wells were drilled in Ventura County in 1865, and in 1866 more than 3,000 barrels were produced, and prior to 1880 practically all of the crude petroleum produced in the State came from this group of pools. The commercial development in the Newhall field began in 1875, when three wells were drilled in the Pico Canyon, and in 1880 a production of 40,000 barrels was recorded. This entire territory has been characterized by great stability of production, and, contrary to the usual experience in other oil-producing sections, this pioneer district in California recorded a larger production in 1920 than for any preceding year, notwithstanding the fact that crude in commercial quantities has been produced in these fields for about 45 years. Some of the wells are still producing as much crude petroleum as they did when first brought in over 20 years ago.

There is a great difference in the depths of the wells in different parts of these fields. Some of the wells are only 200 feet deep, while others are drilled to a depth of 3,700 feet; the majority of the wells, however, are less than 1,000 feet deep. The crude petroleum varies greatly in gravity, ranging from 12° to 54° Baumé in the Ventura County fields and from 11° to 39° in the Newhall field. About 90 per cent of the total production is higher than 18° Baumé gravity.

Southern Division.—The oil pools in the Southern Division are located in Orange and Los Angeles Counties. This group includes the Salt Lake, Los Angeles City, Montebello, Coyote Hills, Whittier-Fullerton, Richfield and Huntington Beach pools.

The Salt Lake field lies just west of the Los Angeles city limits and is situated on gentle slopes about 2 miles south of the base of the Santa Monica Mountains. The first well was drilled in this field in 1901, and the maximum production of 4,535,800 barrels was recorded in 1903. The crude petroleum produced in this field ranges from 10° to 25° Baumé. The Salt Lake field is quite small. Its area is about 2 square miles, with a proven acreage of about 1,200 acres. The wells range from 800 to 3,000 feet in depth, with an average of about 1,725 feet.

The Los Angeles City field is situated in a thickly settled residential district of Los Angeles. Although the presence of oil and gas in the Los Angeles field was known as early as 1865, the field was not developed until 1892, when E. L. Doheny drilled in a well by hand and obtained a small but steady production. The crude petroleum is quite heavy, having a gravity of from 12° to 19° Baumé. On account of the heavy character of the crude it is used locally for

fuel purposes. During recent years production statistics for the Salt Lake pool and the Los Angeles City field have been combined. The maximum production of these two fields was 5,138,959 barrels in 1908. The combined proven acreage in 1920 was 2,700 acres. The wells vary in depth from 500 to 1,200 feet.

The Whittier-Fullerton field is located in the eastern part of Los Angeles County and in the northwestern part of Orange County. This field includes the following pools, listed in the order of their present productivity: Coyote Hills, La Habra, Brea Canyon (Fullerton), Olinda, Whittier, Montebello, Richfield, and Puente. The entire field covers an area of 15 square miles and has a proven area of about 6,381 acres. The wells vary greatly in depth in the different fields. The first important production in these fields was obtained in 1897, when a total of 12,000 barrels was produced. Since 1897 the production has steadily increased until 28,694,163 barrels were produced in 1920.

The shallowest wells are found in the Puente pool, where the depth ranges from 700 to 2,300 feet, while the deepest wells are in the Coyote Hills, where the depth ranges from 3,500 to 5,000 feet. The crude petroleum varies greatly in quality; the heaviest is 14° or 15° Baumé and the lightest exceeds 35° Baumé. The crudes obtained in the Coyote Hills, Huntington Beach, and Brea Canyon are the lightest produced in this district. The Huntington Beach field was not discovered until August, 1920.

Section 4. Development of production.

DRILLING OPERATIONS.—In order to increase or maintain the level of crude-petroleum production, it is necessary to maintain active drilling operations. The very rapid increase in the demand for many petroleum products, particularly in 1919 and 1920, made it difficult for the petroleum industry of California to secure a sufficient supply of crude petroleum. Up to 1919 the petroleum industry had been so successful in developing new oil fields and in extending old ones that the rapid increase in the demand for petroleum products had not created any general anxiety as to the adequacy of the future supply. During this period, notwithstanding increasing costs, drilling operations were active in all developed fields. This activity is shown by the record of drilling operations. Reliable drilling data are not available prior to 1907. A summary of drilling operations in California and for the United States as a whole from 1907 to 1919 is given in Appendix Table 5.

The statistics for the period 1907–1918 were obtained from the United States Geological Survey sources, while those for the year 1919 were compiled from reports obtained by the Commission. The significant figures in the table, so far as the production of crude petroleum is concerned, are the number of oil wells secured, while the combined number of oil and gas wells give the total successful operations. The dry wells, or in the language of the oil fields the "dry holes," represent the failures. The total for oil and gas wells and "dry holes" represent the efforts of the oil industry to maintain or increase the supply of crude petroleum. The number of gas wells includes only those struck in drilling for crude petroleum and represents but a small proportion of the total gas wells drilled in any given year.

The number of wells drilled in the United States increased about 49 per cent from 1907 to 1919, while the increase for the State of California during this same period was over 96 per cent. The greatest number of wells drilled in the United States subsequent to 1907 was in the year 1919, while for the State of California the greatest number was drilled in 1911. The total number of wells drilled in the United States declined almost 30 per cent from 1907 to 1911, which year records the lowest total during the period. The decrease during this period was the result of the rapid development of production in the Illinois field, which became important in 1907. The quantity of crude petroleum produced in the Illinois field during this period congested the storage facilities and markets east of the Mississippi River, and as a result of this large increase in storage, the price of crude petroleum was reduced. This reduction in price resulted in a curtailing of drilling operations. The number of wells drilled in the oil fields east of the Mississippi River decreased from 12,859 in 1909 to 7,023 in 1911, which represented a decrease of 45 per cent in this territory. Drilling operations outside of California increased rapidly during 1912 and 1913 and they continued large throughout 1914, but there was a very sharp decline during 1915. This decline was due to the tremendous quantity of crude petroleum that was brought to the surface by the forced development of the Cushing pool in Oklahoma. As a result of this large production there was a reduction in the price of crude petroleum in all of the fields east of the Rocky Mountains. Notwithstanding the fact that there was a big decrease in the drilling operations in the entire country in 1915, the production of crude petroleum for the country outside of California did not decline. Under the pressure of war necessities and the inducement of higher prices, there was a marked increase in drilling activities east of the Rocky Mountains during 1916, but in 1917 there was a slight falling off compared to 1916, though the total was still large, while in 1918 and 1919 drilling operations were larger than ever before.

In California the period from 1907 to 1911 was one of very active drilling operations. While the year 1911 was the low year for the entire country, in California it represents the year of greatest drilling activities. The increase in the number of wells drilled in California from 1907 to 1911 was 50 per cent. From 1907 to 1914 the quantity of crude petroleum produced in California constantly increased and, although there was a sharp reduction in the number of wells drilled each year from 1911 to 1915, the drilling activities were sufficient to maintain a steady increase in production. The number of wells drilled in 1915 was only slightly more than half as great as the number completed in 1914. This curtailment in drilling was largely due to the temporary overproduction resulting from the record production of 1914, which was accompanied by a decline in consumption that followed the outbreak of the World War. This overproduction was followed by a reduction in the price of crude petroleum; and the reduction in price was immediately reflected in drilling operations, which during 1915 decreased to 300, the smallest number in the entire period. From 1916 to 1919, inclusive, prices at the well were advanced, and excepting 1919, the number of wells drilled were increased from year to year. In 1919 there was a slight falling off in the number of drilling operations.

The percentage of successful oil wells drilled in California has been remarkably large. In 1907 about 96 per cent of all the wells drilled in that State produced crude petroleum, while for the United States only 79 per cent struck oil. While there has been some fluctuation from year to year in successful operations, there was only one year in California, namely, 1911, in which less than 90 per cent of the operations brought in producing wells, and during the 13-year period 92 per cent of the total drilling operations were successful, while for the country as a whole only 73 per cent developed oil wells. As compared with other oil fields, drilling operations from 1907 to 1919 appear to indicate that there is less hazard in drilling wells in California than in other parts of the country.

HAZARD IN DRILLING.—The element of hazard is always present in drilling operations; even in proven territory where good producing wells have been secured, some drilling operations will usually fail to strike crude petroleum. In operations outside of proven territory and in new fields the percentage of failures is often very large. The hazard incident to pioneer operations in unproven territory is considered so great that such operations are described as "wildcatting."

Wildcat operations are frequently an important factor in the discovery of a new oil field. The large producers of crude petroleum in exploring prospective oil-producing areas make use of skilled geologists, and thus reduce the element of hazard in the attempt to locate new oil fields, but a considerable proportion of new oil pools have been discovered by small operators who, as a rule, do not have sufficient capital to have a careful examination made by trained geologists. The annual loss due to the failure of wildcat operations is very large, as large numbers of producers pursue such operations until their losses exhaust their financial resources. Many companies are organized each year who finance their operations from proceeds obtained from the sale of oil stocks and never succeed in drilling a producing well.

The dry holes drilled in proven and unproven territory do not include all of the risk involved in drilling operations. Many wells have to be abandoned because of mechanical difficulties and for other causes before they are drilled deep enough to reach the oil-bearing sand, but complete statistics are not available covering the number of wells abandoned before a thorough test is made. The records of one of the large companies in California illustrate the importance of such failures. Its records show that 10.65 per cent of the wells drilled proved to be dry holes and 9.75 per cent had to be abandoned for other reasons. Fifty-three of the total number of wells drilled were wildcat operations; 37 of these proved to be dry holes, 8 were abandoned because of drilling difficulties, and the remaining 8 produced crude petroleum. A few of these successful wildcat operations have resulted in the discovery of some of the best oil pools in the State of California. For example, on February 24, 1917, the Montebello Pool, and again in February, 1920, the Elk Hills Pool, were discovered through wildcat operations.

DRILLING BY COMPANIES.—A large percentage of the wells drilled in California during the period 1914–1919 were drilled by large companies. Reports were obtained by the Commission from 88 producing companies which give detailed information regarding their drilling operations for that period. The total number of wells

drilled in California and the number and percentage drilled by each group, 1914–1918, is shown in Appendix Table 6.

Some of the companies drilled wells each year, while others drilled in only one or two years during the period 1914–1918. In 1917, the year in which the largest number were reported, 64 of the 88 companies engaged in drilling. Companies producing 1,000,000 barrels or over each year drilled from 63 to 78.9 per cent of the total oil wells reported, companies producing from 250,000 to 1,000,000 barrels annually drilled from 7.5 to 23.2 per cent of the total, those producing from 50,000 to 250,000 barrels drilled from 7.7 per cent to 13 per cent of the total reported, while companies having a small annual production drilled from 1.8 per cent to 5.9 per cent of the total. During the period 1914–1918 the number of oil wells drilled by companies furnishing this information constituted from 42 per cent to 75 per cent of the total number drilled in the State.

As stated above, the large companies drilled by far the largest number of wells; however, the percentage drilled by them was no larger than should be expected from the size of their holdings. While they drilled 72.2 per cent of the total number of wells drilled in 1918, they owned 84.5 per cent of the oil lands, 68.1 per cent of the proven oil lands, and had 76.9 per cent of the net investment in the crude petroleum producing business.

So far as the smaller producing companies are concerned, if the reports received by the Commission are typical, this class has not increased its activity in drilling. Various reasons, such as lack of capital, increasing cost of drilling, and in 1915 the low price of crude petroleum at the wells, have been frequently mentioned as discouraging this class of producers from engaging in active drilling.

MEASURES GOVERNING DRILLING AND OPERATION.—Prior to 1915 there was no State regulation governing the drilling and operation of oil and gas wells in California, but by the act of June 10, 1915,[1] provision was made for the appointment of a State oil and gas supervisor, with authority to supervise the drilling, operation, maintenance, and abandonment of oil and gas wells in California, and to prevent, as far as possible, waste of crude petroleum and gas and damage to oil and gas deposits from the infiltration of water and other causes. Under this statute individuals or corporations must file an information notice with the supervisor prior to the beginning of drilling operations. Water encountered in drilling operations must be carefully shut off, under the supervision of the supervisor or one of his deputies, and wells can not be abandoned unless provision has been made for measures which have been approved by the supervisor to prevent injury to the oil and gas deposits. In 1917 the California Legislature passed an amendment to the act creating a department of the State mining bureau for the conservation of petroleum and gas resources, which increases and strengthens the jurisdiction of the oil and gas supervisor.[2]

A great improvement in oil-field conditions has resulted from the administration of these State laws. A detailed record of every important phase of drilling and operating results is kept, the geological conditions are carefully studied, and the oil and gas producers

[1] Chap. 718, California Statutes, 1915, p. 1464.
[2] Chap. 750, California Statutes, 1917.

have the benefit of recommendations and suggestions of an engineering staff whose State-wide observations enable them to give the best scientific and technical information regarding drilling, operating, and maintaining of oil and gas wells.

Section 5. Production of crude petroleum.

CHARACTER OF CALIFORNIA CRUDE.—The California crude petroleum, with the exception of certain small quantities produced in the Ventura County fields, is asphaltic in character. The California crude of asphaltic base sometimes contains more than 50 per cent of hydrocarbons belonging to the naphthene series and also contains large proportions of hydrocarbons known as the aromatic of benzol series, which are usually found in coal tar. In the early development of refining in California this comparatively large proportion of carbon to hydrogen present in the benzol series produced a kerosene which burned with a smoky flame. Later it was found that these aromatic hydrocarbons could be removed by treating the refined oil with fuming sulphuric acid.[1] The physical properties of the crude petroleum produced in the important California fields are shown in Appendix Table 7.

The temperature at which the specific gravity and Baumé scale are compared, i. e., 15° centigrade and 60° Fahrenheit, represent almost identical temperatures, 60° Fahrenheit being equivalent to 15.6° centigrade. The character of a crude is roughly indicated by the degrees Baumé, the heavy crudes being indicated by the lower degrees and the light oils by the higher degrees. The table referred to above includes neither the heaviest nor the lightest crudes. The crude petroleum produced in some of the fields ranges as low as 8° Baumé, which represents a specific gravity of 1.014, and is heavier than water. On the other hand, some of the light crude is as high as 44° Baumé (specific gravity = 0.8046), or even higher.

As already stated, the average crude petroleum produced in California is heavier than the greater part of the crude produced east of the Rocky Mountains. It yields a higher percentage of fuel oil and has a much smaller yield of kerosene and gasoline than most of the crudes produced east of the Rocky Mountains. The California industry divides the crude petroleum production into two classes, viz, light crude and heavy crude. At the present time the dividing line between the light and heavy crude petroleum is fixed at 17.9° Baumé; i. e., all crude lighter than 17.9° Baumé is classed as light crude, while the heavy grade includes all crude 17.9° Baumé or heavier. In general, the heavy crude varies from about 9° to 17.9° Baumé, while the bulk of the light crude varies from 18° to about 40° Baumé, although a very small quantity testing as high as 54° Baumé has been produced. There has been a marked increase in the proportion of light crude petroleum produced in the 13-year period 1907–1919, as shown in the table below, which is based upon information furnished by the Standard Oil Co. (California).

[1] See Report of Committee on Petroleum, California State Council of Defense, pp. 66-67.

TABLE 10.—*Proportion of light and heavy crude petroleum produced in California, 1907–1920.*

Year.	Light crude (18° Baumé and over).	Heavy crude (17.5° Baumé and under).	Year.	Light crude (18° Baumé and over).	Heavy crude (17.5° Baumé and under).
	Per cent.	*Per cent.*		*Per cent.*	*Per cent.*
1907	34	66	1914	60	40
1908	39	61	1915	65	35
1909	36	64	1916	65	35
1910	45	55	1917	66	34
1911	47	53	1918	67	33
1912	54	46	1919	68	32
1913	69	37	1920[1]	70	30

[1] Estimated.

In Appendix Table 8 both the quantities in barrels of 42 gallons and the proportion of light and heavy crude petroleum produced are shown by years, 1907–1919. In 1920 the proportion of light crude has probably increased to 70 per cent.

In explaining the significance of its figures and the plan followed in determining the two classes of crudes, the Standard Oil Co. (California) submitted the following statement:

> The figures submitted are not based upon the gravity of individual wells but upon the average gravity of properties. In other words, a producer operating 20 wells may have 10 wells producing oil of less than 18° gravity, the remaining wells producing oil of a gravity sufficiently high to bring the average gravity of the production of the property to over 18° gravity. Inasmuch as we do not have records of the gravity of individual wells, the classification as stated is based upon the average gravity of properties.

It will be noted that a most pronounced change occurred as between 1910 and 1914. This was due in part to a decline of more than 7,000,000 barrels in the production of heavy crude petroleum in the Kern River field, but by far the greatest factor was the enormous increase in the production of lighter crudes in the Midway-Sunset and Whittier-Fullerton fields. In those fields alone the total production in 1914 amounted to 64,156,000 barrels, compared with 34,224,000 barrels in 1911. More than 80 per cent of this increase was in the lighter grades.

On the Pacific coast the crude used for fuel oil is sold on the market at the same price as residuum fuel oil that comes from the refinery. The practice generally is to deliver the fuel crude directly from the field to the consumer without having it pass through a refinery. In other sections of the country all crude petroleum is run through a refinery, and heretofore the residuum fuel oil has sold at prices generally ranging below the price of crude. The Standard Oil Co. (California) is an exception to the rule, as it sells no crude petroleum as fuel until it has passed through a distillation process. Under this policy of conservation the lubricating stocks and other valuable contents in the crude are saved, leaving only the residuum to be used for fuel.

PRODUCTION BY FIELDS.—The first production of petroleum in the State of California was obtained from the Ventura County fields in 1866, when 3,000 barrels were produced. During the period 1867–1874 there is no record of annual production by fields, but practically

the entire production was secured from the Ventura County fields. The statistics of the Standard Oil Co. (California) give the production of crude petroleum by fields since 1875, and they constitute the most complete record for the State of California. For a greater part of the period from 1875 to 1920 the statistics of this company covering the annual production are accepted and used as the official figures. In some cases in recent years there is some slight difference between the statistics of the Standard Oil Co. (California) and those published by the California State Mining Bureau, or by the Independent Oil Producers' Agency, or by the United States Geological Survey.

The quantity of crude petroleum produced in barrels of 42 gallons in the principal oil fields is given in Appendix Table 9, which shows the annual production for the different fields, or districts, covering varying periods of time from 11 to 45 years. The total production by fields for the entire recorded period 1866–1920, together with the production by fields for the year 1920, is shown in the following table:

TABLE 11.—*Production of crude petroleum in California, by fields, in barrels of 42 gallons, 1866–1920.*

Field.	Production.			
	1920		1866–1920	
	Barrels.	Per cent.	Barrels.	Per cent.
Midway	32,468,220	30.7	313,415,350	23.2
Whittier-Fullerton	28,691,195	27.2	197,339,164	14.7
Coalinga	15,464,780	14.6	245,905,445	18.2
Kern River	7,455,515	7.1	221,386,345	16.4
Santa Maria	4,220,660	4.0	103,045,131	7.6
Sunset	2,422,761	2.1	82,770,486	6.1
Lost Hills-Belridge	4,120,767	3.9	57,540,723	4.1
McKittrick	2,657,240	2.5	60,552,470	4.4
Ventura County-Newhall	2,122,449	2.0	22,286,777	1.5
Los Angeles-Salt Lake	1,311,264	1.2	26,963,761	1.9
Summerland	96,910	.1	2,363,357	.2
Miscellaneous	26,640	(1)	1,045,667	.1
Total[2]	105,721,186	100.0	1,348,301,434	100.0

[1] Less than one-tenth of 1 per cent.

[2] These totals differ slightly from those in Table 4, which are United States Geological Survey statistics.

The above table shows that of the total production of 105,721,186 barrels of crude petroleum in all California fields for the year 1920, 76,651,590 barrels, or 72.5 per cent of the total, was produced in the Midway, Whittier-Fullerton and Coalinga fields. Of this 72.5 per cent, 30.7 per cent was produced in the Midway field, 27.2 per cent in the Whittier-Fullerton field, and 14.6 per cent in the Coalinga field. For the period 1859–1920 these same fields produced, respectively, 23.2 per cent, 14.7 per cent, and 18.2 per cent, or 56 per cent of the total for the period. The Kern River field, which produced 16.4 per cent of the total production for the period 1859–1920, produced 7 per cent of the 1920 production.

The three groups of fields that have been producing longest are located in Southern California. The Ventura County and Newhall fields have been producing longer than any other group in the entire State. Notwithstanding the fact that these fields have been producing crude petroleum for more than 50 years, the production for the last year shown is larger than that for any previous year.

While the production of crude petroleum was first developed in Southern California, the largest production has been secured from the San Joaquin Valley Division, which includes the Midway, Coalinga, Kern River, Sunset, Lost Hills, Belridge, and McKittrick fields. As indicated above, the Midway, the Coalinga, and the Kern River fields, in this division, have been the three largest producers in the State, while during the same period the San Joaquin Valley Division produced over 71 per cent of such production.

The Midway field leads all others in the volume of its aggregate production and it has also had the largest production in a single year. As will be seen by comparison with Appendix Table 9, in the aggregate, the production of the Midway field alone surpasses that of several oil-producing States east of the Rocky Mountains. As already pointed out, the Sunset and Midway fields are frequently classed as one field. If their production were combined the aggregate production since their discovery would be greater than that for any of the oil-producing States except Oklahoma, Texas, Pennsylvania, and Ohio, and their present daily production would only be exceeded by that of the States of Kansas, Oklahoma, and Texas.

The Midway field was developed slowly, and during the first eight years its annual production was small. In 1910 there was a rapid increase in its production, the total for the year reaching 11,174,207 barrels, as compared with 2,234,455 barrels in 1909. The annual production increased rapidly until 1914, when the maximum of 37,479,228 barrels was produced. In 1915 there was a marked decrease in its production, which was attributed to litigation with the Federal Government, resulting from withdrawal orders, by which, late in 1912, about 67,800 acres were set aside as petroleum reserves for the exclusive use or benefit of the United States Navy. (See Chap. IV.) In 1920 this field produced 32,493,229 barrels, an increase of 6,000,000 barrels over the previous year. This was the largest production of any field in the State.

The aggregate production of the Coalinga field ranks next to that of the Midway field, and at the end of 1920 its total was 245,005,605 barrels. At the end of 1920 this field had been producing crude petroleum for 25 years. The maximum annual production of 19,546,000 barrels was produced in 1912. Three years later, in 1915, the annual production had declined 31 per cent, but during the following five years there was a gradual recovery until the production of 1920 showed a decrease of only 21 per cent, as compared with the maximum.

The aggregate production of the Kern River field ranks third among the oil fields of California. A total of 221,586,265 barrels had been produced by the end of 1920, at which time it had been producing crude petroleum for 21 years. The Kern River field was the first field in the entire State to develop a very large annual production. Its development was very rapid and its maximum annual production of 17,226,240 barrels was reached in 1904, only four years after the first annual production was recorded. During the 16 years following 1904 its production has declined 57 per cent.

The Whittier-Fullerton fields show the fourth largest aggregate production. These fields are located in the Southern California Division and in the year 1920 had a production second in size only to

that of the Midway field. These fields have been producing for 24 years and their 1920 production of 28,694,163 barrels was larger than that for any previous year. The Whittier-Fullerton fields comprise some of the most prolific pools in the State of California and the present daily average production per well in this field far surpasses that of any other field in the State. In December, 1919, with 887 wells in operation, the average daily production was 88 barrels per well, as compared with the next highest daily average of 44 barrels per well for the Santa Maria field.

From 1916 to 1920 the annual production of the Whittier-Fullerton fields almost doubled; this large increase was due to the development of the Montebello pool, which was discovered in 1917. The discovery well in the Montebello pool was brought in during March, 1917, and from that date to the close of 1919 this new pool had produced 19,823,534 barrels of crude petroleum. This volume of relatively high-grade crude was developed at a time of great need, and it was by far the most important factor in offsetting the decline in other fields and in increasing the production of the entire State from 1917 to 1920.

The aggregate production of each of the other fields is much smaller than for either the Midway, Coalinga, Kern River, or Whittier-Fullerton, yet their annual production forms an important contribution to the State's total. The Ventura County and Newhall fields, the Los Angeles and Salt Lake fields, and the Summerland field were in the order named the first fields developed in California, and prior to 1896 furnished the entire supply of California.

Excepting the sharp decline in production, resulting from curtailment of drilling operations, following the maximum production in 1914, which resulted from the flush production of the Midway and Sunset fields, the production of the California oil fields has maintained an almost constant increase for 30 years. This increase during the past 15 years has been due to the large annual production secured first from the Coalinga field, then from the Midway-Sunset, and since 1917 from the Whittier-Fullerton fields.

The column showing the percentage which each year's production is of the maximum production for each field, and for the State as a whole, shows that the California oil fields are long lived. As already stated, the Ventura County and Newhall group of fields have been producing for more than 50 years and the 1920 production was larger than for any previous year. The Whittier-Fullerton District did not reach its maximum production for 24 years, while the maximum production for the Coalinga field was reached in 17 years, the Sunset field in 15 years, the Midway, Los Angeles and Salt Lake fields in 15 years, and the McKittrick field in 12 years. The remaining fields were developed more rapidly. The Kern River field attained its maximum production in 5 years, the Summerland in 6 years, the Santa Maria in 7 years, and the Lost Hills and Belridge fields reached their maximum production in 8 years. None of the California fields has been abandoned, and most of them promise to be factors of importance for many years to come.

DAILY PRODUCTION PER WELL IN CALIFORNIA.—The statistics of the daily production of crude petroleum per well for the period 1903–1915 are given in Bulletin 73, published by the California State Mining Bureau (pp. 236–242). Since 1915 similar information is pre-

sented in the Standard Oil Bulletins, published by the Standard Oil Co. (California). The following table, compiled from the above-mentioned sources, gives the average number of wells operating annually, the average daily production per well, and the percentage which each year's average daily production is of the maximum daily production per well. The year of maximum daily production per well is indicated by 100.

TABLE 12.—*Average number of wells and average daily production of petroleum in California, 1903–1920.*

Year.	Average number of wells operated.	Daily average production per well.		Year.	Average number of wells operated.	Daily average production per well.	
		Barrels.	Percentage of maximum daily average production.			Barrels.	Percentage of maximum daily average production.
1903	2,404	28.7	85	1912	5,670	44.8	92
1904	2,763	28.2	69	1913	6,992	45.6	93
1905	2,257	29.2	80	1914	6,976	46.7	96
1906	2,393	27.6	77	1915	6,242	38.7	79
1907	2,633	41.7	63	1916	6,965	38.1	78
1908	3,138	42.1	65	1917	7,715	34.6	71
1909	3,699	43.1	69	1918	8,118	33.5	69
1910	4,353	46.9	100	1919	8,987	31.2	64
1911	4,982	42.0	94	1920	9,380	30.5	63

This table covers a period of 18 years, and during that time, except for the three-year period 1905–1907, there was a constant increase in the average number of wells operated annually. During the first eight years, with the single exception of 1906, there was a steady increase in the average daily production per well. The maximum average daily production was reached in 1910, and the five-year period beginning with 1910 includes the years of highest average daily production per well. This period was also one of great activity in drilling operations[1] and of rapidly increasing production in the Midway field. Beginning with 1915 the average daily production per well has declined steadily. This period of declining daily production per well coincides with declining production in the Coalinga, Midway, and Sunset fields. The 1920 average daily production of crude petroleum per well was 18.1 barrels per day less than that for 1910, which represents a decline of 37 per cent. During the same period the average number of wells operated annually increased from 4,353 to 9,380, representing an increase of more than 115 per cent.

DAILY PRODUCTION PER WELL IN VARIOUS STATES.—The average daily production per well in California is large as compared with that for most other oil-producing States. The daily average production per well based on the number of productive wells as of December 31, 1918, and the marketed production for that year, as reported by the United States Geological Survey, are shown in Table 13.

[1] See Appendix Table 5.

TABLE 13.—*Average daily production of petroleum per well by States, 1918.*

State.	Average daily production per well.	State.	Average daily production per well.
	Barrels.		*Barrels.*
Wyoming	37.07	Indiana	1.83
California	29.89	West Virginia	1.33
Louisiana	20.04	Ohio	.99
Texas	14.85	Pennsylvania and New York	.52
Kansas	14.34	Other States	2.93
Oklahoma	7.51		
Kentucky	3.30	United States	4.79
Illinois	2.29		

The information set forth in the foregoing table, together with a comparison of the number of producing wells and the marketed production, is shown in Appendix Table 10.

The production for each State includes the total quantity of crude petroleum marketed, as reported by the United States Geological Survey for the year 1918. On the other hand, the number of productive oil wells, as determined by the Geological Survey, includes the number of producing wells at the end of the previous year, to which is added the number of wells completed during the year, and from the total is deducted the number of wells abandoned during the year. It is obvious that all of the wells were not operated the entire year; furthermore, some wells were closed in at the end of the year. While it is impossible to obtain the exact average production per well, the averages shown for the different States are all determined on the same basis; hence the results can be accepted as indicative of the relative productive capacity of the wells in the different States in 1918.

There is a wide range in the daily average for the different States. In the pioneer fields of Pennsylvania and New York the daily production per well is very low, while in the Wyoming fields, which have been largely developed within the past few years, the average per well is comparatively high. Compared with Oklahoma, the average for Kansas appears high, but this was due to the initial production obtained from big wells drilled in the Butler County (Kans.) pool in 1917 and 1918. Many of these wells had a daily initial production ranging from 4,000 to 18,000 barrels. The comparatively high average in Texas and Louisiana was due to the large number of big wells brought in during 1918. In the Appalachian field, which comprises Tennessee, Kentucky, West Virginia, Pennsylvania, and New York, the daily average for Kentucky is much larger than for West Virginia or New York and Pennsylvania. This high average for Kentucky is due to the fact that the extensive development in this State is very recent, while New York and Pennsylvania have been developed for many years.

California had the second highest average production per day in 1918 and it far exceeded the average for any of the other large producing States except Wyoming. The average shown in the above table is not quite as high as is shown in Table 12. The difference is due to the fact that in the above table the number of wells comprise those productive at the end of the year, and the quantity is based

upon marketed production; while in the preceding table the number of wells was obtained by dividing the average number operated each month by 12 to get an annual average, and the actual production instead of marketed production was used. In this table in order to secure comparable averages the data were used on the same basis as for other States.

The most significant feature disclosed by the above table is the general low average production for the wells in the older fields east of the Mississippi River. In 1918 the fields west of the Mississippi River had 32 per cent of the producing wells and 88 per cent of the total marketed production, while the eastern fields with 68 per cent of the producing wells had only 12 per cent of the marketed production. The wells in the oil fields west of the Mississippi River show an average daily production per well of 13 barrels of crude petroleum, while those in the eastern section averaged less than 1 barrel per day.

The price of crude oil in the different fields has a big influence on the average daily production per well; for example, if the price for crude petroleum in the Appalachian field were no higher than that paid for the crude in the Mid-Continent field, a large number of wells which yield a very small production would be abandoned and consequently the daily average per well would be increased, while the total production would be decreased considerably.

Section 6. Production by companies.

SOURCES OF INFORMATION.—In order to secure accurate information covering the different phases of the production of crude petroleum in California, the Commission sent schedules to 412 different companies and individuals that were reported to be engaged in crude petroleum production. Replies were received from about 75 per cent of those to whom schedules were sent. Some of the reports received were from companies that had retired from the oil business, others were interested merely as royalty owners, and still others, having a production of from 1,000 to 75,000 barrels per year, could not furnish all of the information covered by the schedule. The number of companies furnishing information regarding production ranged from 125 in 1914 to 169 in 1918. Owing to the fact that some companies were unable to furnish a semiannual statement, there was a considerable decrease in the number reporting for the first six months in 1919. The reports which the Commission have been able to make use of include practically all the important oil-producing companies and a sufficient number of the intermediate and smaller ones to make the information representative for the crude petroleum producing industry of California.

The complete information secured by the schedules sent out by the Commission covers the period from January 1, 1914, to June 30, 1919. Certain information, such as prices, total production, stocks and foreign trade, have been secured to December 31, 1920, but information such as cost of production, production by individual producers, and other details pertaining to the business of individual companies have been secured only for the period January 1, 1914, to June 30, 1919.

PRODUCTION BY GROUPS.—The production of the companies reporting to the Commission has been tabulated in four groups, based on the

quantity produced by each company for each year. The first group includes all companies having a production of 1,000,000 barrels or more per year, group two includes those producing from 250,000 to 1,000,000 barrels, group three is made up of companies having a production of 50,000 to 250,000 barrels annually, and the fourth group embraces companies with a production of less than 50,000 barrels per year. The production of companies and individuals reporting to the Commission grouped, as explained above, is shown in Table 14, for the period 1914–June 30, 1919:

TABLE 14.—*Production of crude petroleum in California by groups of companies reporting, in barrels of 42 gallons, 1914–June 30, 1919.*

Year.	Group.	Range of production.	Number of companies.	Quantity.	Average per company.	Proportion by groups.	Proportion of State total.
				Barrels.	*Barrels.*	*Per ct.*	*Per ct.*
1914	1	Over 1,000,000	11	50,205,279	4,509,580	76.3	48.5
	2	250,000 to 1,000,000	10	9,287,983	917,548	14.0	8.9
	3	50,000 to 250,000	53	4,380,753	80,626	6.6	4.1
	4	Under 50,000	62	1,113,379	20,000	1.7	1.1
		Total	135	65,852,374	527,059	100.0	63.6
1915	1	Over 1,000,000	8	42,550,302	5,318,790	71.6	47.5
	2	250,000 to 1,000,000	20	10,372,025	526,023	17.9	11.3
	3	50,000 to 250,000	42	4,464,160	106,281	7.5	4.9
	4	Under 50,000	62	1,853,080	30,676	2.8	1.8
		Total	132	59,231,139	448,721	100.0	66.1
1916	1	Over 1,000,000	10	30,624,439	3,062,444	76.2	52.3
	2	250,000 to 1,000,000	19	5,579,661	457,302	13.3	9.7
	3	50,000 to 250,000	51	3,305,999	103,388	8.9	5.8
	4	Under 50,000	66	1,585,136	24,708	2.6	1.7
		Total	146	69,095,444	602,675	100.0	72.5
1917	1	Over 1,000,000	10	56,822,420	5,682,243	77.5	68.5
	2	250,000 to 1,000,000	19	9,355,170	427,115	12.2	9.5
	3	50,000 to 250,000	57	6,809,325	106,621	8.9	6.3
	4	Under 50,000	78	1,705,704	32,888	2.3	1.7
		Total	164	75,873,139	462,641	100.0	76.0
1918	1	Over 1,000,000	10	62,220,258	6,220,267	77.4	69.2
	2	250,000 to 1,000,000	22	10,542,770	479,172	13.9	10.4
	3	50,000 to 250,000	53	6,042,253	114,028	7.4	5.9
	4	Under 50,000	44	1,992,960	32,573	2.3	1.9
		Total	169	81,083,941	483,337	100.0	80.4
1919[1]	1	Over 1,000,000	12	33,993,253	2,830,938	86.4	67.1
	2	250,000 to 1,000,000	22	4,917,084	223,959	11.6	9.7
	3	50,000 to 250,000	46	2,022,493	106,811	4.0	3.1
	4	Under 50,000	72	825,911	11,471	2.0	1.6
		Total	151	42,261,744	279,879	100.0	83.5

[1] First 6 months.

In the above grouping there is a considerable shifting of individual companies. For example, two companies that produced over 1,000,000 barrels each in 1914, and were therefore placed in group 1, dropped to groups 2 and 4 the following year because the production of one company had fallen to less than 500,000 barrels and the other to less than 50,000 barrels.

The proportion of the total production of California, which is covered by reports to the Commission, increased steadily from 63.6 per cent in 1914 to 80.4 per cent in 1918, while the percentage for the first half of 1919 on an annual basis is 83.5 per cent.

Group 1, which includes companies producing 1,000,000 barrels and over each year, furnished the bulk of the production for each year. The proportion which this group produced of the total reported varied from 71.8 per cent in 1915 to 80.4 per cent for the first half of 1919, while this group contributed from 47.5 per cent in 1915 to 67.1 per cent for the first half of 1919 of the total for the State of California. The smallest quantity produced by this group for a full year was 42,550,368 barrels in 1915, and the largest 63,202,366 barrels in 1918. The average production per company increased from 4,569,580 barrels in 1914 to 6,320,237 barrels in 1918.

Group 2, which includes the production of companies having an annual production of from 250,000 to 1,000,000 barrels, shows its largest production for a full year of 10,572,668 barrels in 1915, and its smallest of 8,879,891 barrels in 1916. The largest proportion of the State's total produced by this group was 11.8 in 1915, and the smallest 8.9 in 1914. The average production per company for a complete year varied from 467,363 barrels in 1916 to 528,633 barrels in 1915.

In group 3, which includes companies producing from 50,000 to 250,000 barrels, the largest quantity of crude petroleum was produced in 1917 and the smallest for a full year in 1915. The proportion of the State's total production contributed by this group fluctuated from 5 per cent in 1915 to 6.3 per cent in 1917. The average production per company for a complete year varied from 99,826 barrels in 1914 to 114,023 barrels in 1918.

The production of group 4, which includes that for companies producing less than 50,000 barrels each year, increased from 1,118,379 barrels in 1914 to 1,896,566 barrels in 1918. In 1914 this group produced only 1.1 of the State's total, while in 1918 it was 1.9 per cent. The average production per company was lowest in 1917, when it was only 21,868 barrels. The highest average for a full year was 26,676 barrels in 1915.

The importance of companies producing 250,000 barrels or over is shown by combining groups 1 and 2. Throughout the period 1914–June 30, 1919, the production of these two groups varied from 89.6 to 92 per cent of the total reported to the Commission. During the same period the first three groups, i. e., companies producing 50,000 or more barrels per year, produced from 97.2 to 98.3 per cent of the same total.

PRODUCTION BY LARGE INTERESTS.—The concentration of production is greater than indicated in the foregoing discussion, as several of the large crude petroleum producing companies control a number of allied and subsidiary companies. The total number of allied and subsidiary companies engaged in producing crude petroleum which were controlled by the principal producing companies in 1919 was as follows:

Controlling company	Number of allied and subsidiary companies.
Associated Oil Co.	10
Doheny Interests	7
Union Oil Co. of California	3
Santa Fe Railway Co.	2
Total	22

These 22 companies, together with the Associated Oil Co., the Union Oil Co., the Standard Oil Co. (California), General Petroleum Corporation, Shell Co. of California, and the Southern Pacific Co., include all but one of the more important crude petroleum producing interests in California. During the period covered the Southern Pacific Co. controlled the Associated Oil Co. through holdings of stock; hence, these two interests have been combined.[3] Reports were obtained from all of the above companies for the entire year 1919, so that information on their production covers the period 1914–1919. The production of the principal crude-petroleum producing companies and of their allied and subsidiary companies is shown in Appendix Table 11 for the period 1914–1919. The following table shows their production in 1914 and 1919:

TABLE 15.—*Production by seven large interests, in barrels of 42 gallons, 1914 and 1919.*

Interests.	1919		1914	
	Barrels.	Per cent.	Barrels.	Per cent.
Standard Oil Co. (California)	25,484,984	25.2	13,550,809	13.1
Southern Pacific-Associated Oil Co.	18,444,065	18.2	17,319,452	16.7
Union Oil Co. of California	6,785,447	6.6	6,280,676	6.1
Shell Co. of California	6,702,971	6.6	[1] 4,322,853	4.2
Doheny companies	5,838,789	5.8	4,980,489	4.8
Santa Fe Railway companies	5,754,299	5.7	3,170,817	3.0
General Petroleum Corporation	5,387,251	5.3		
Total	72,313,816	71.4	49,674,248	47.9
Other companies reporting to Commission	[2] 5,967,712	5.9	10,206,127	11.7
Companies not reporting to Commission	23,019,388	22.7	27,741,930	26.4
Total production in California	101,320,916	100.0	103,623,305	100.0

[1] Production of Shell interests taken over by Shell Co. of California in 1913.
[2] First 6 months of 1919.

The production for the General Petroleum Corporation for 1916 includes only the last half of the year. Hence, the only accurate comparison that can be made for the group is for the period 1917–1919, during which time their production increased from 61,755,096 barrels to 72,315,816 barrels and their proportion of the total production of the State increased from 63.4 per cent in 1917 to almost 71.5 per cent. The combined production of the six interests shown for the entire period increased from 49,674,248 barrels in 1914 to 68,928,555 barrels in 1919; this represents an increase of almost 39 per cent; while the production of the State was 2.3 per cent lower in 1919 than in 1914. These six interests increased their proportion of the State's total from about 48 per cent to slightly more than 68 per cent.

Since 1918 the Standard Oil Co. (California) has been the largest single producer in the State of California. Its production increased from 13,550,809 barrels in 1914 to 25,484,984 barrels in 1919, an increase of over 88 per cent, while its proportion of the State's total production increased from about 13 per cent in 1914 to over 25 per cent in 1919. The large increase in its production beginning in 1917 was due to the company's discovery in March, 1917, of the Montebello pool, which has been an important factor in maintaining and increasing the production of the entire State, and which has yielded an increasing production in subsequent years.

[3] In December, 1920, the oil properties and oil interests of the Southern Pacific Co. were taken over by the Pacific Oil Co., which was organized for this purpose.

The Associated Oil Co.-Southern Pacific interests had the largest production from 1914 to 1917, while since that time these interests have ranked second. Their production fluctuated considerably from 1914 to 1919 and was slightly smaller in 1919 than in any of the preceding years, except 1914. In 1914 they produced about 16.7 per cent of the total for the State and in 1919 about 18.2 per cent of the total, while their maximum percentage was 21.6 per cent in 1918. In December, 1920, the producing interests of the Southern Pacific Co. and its control of the Associated Oil Co. was taken over by the Pacific Oil Co.

The production of the Union Oil Co. of California shows a steady increase from 1914 to 1919, except for the year 1915. In 1914 it produced 6,329,978 barrels and 1919 8,705,447 barrels, an increase of over 37 per cent. In 1914 it produced slightly more than 6 per cent of the State total, while in 1919 its production equaled more than 8.5 per cent of that total.

As already stated, the Shell Co. of California was incorporated in 1915 and took over holdings owned by the same interests. The production shown for 1914 was produced by the California Oilfields (Ltd.), which was owned by the Dutch-Shell interests, which controlled the Shell Co. of California (Inc.), the predecessor of the Shell Co. of California. The production of its predecessor was 4,322,833 barrels in 1914, while that of the new company declined to 3,104,044 barrels in 1915. From 1915 to 1918 its production increased steadily, while the 1919 total was only slightly less than that for 1918. The 1919 total was almost 55 per cent greater than the production of the Shell interests for 1914, while its proportion of the total production of the State increased from about 4.2 per cent in 1914 to 6.6 per cent in 1919.

The seven Doheny companies produced 4,930,650 barrels of crude petroleum in 1914. From 1914 to 1917 their production decreased steadily to 3,312,497 barrels, after which time it began to increase until the 1919 total reached 5,836,799 barrels, a gain of over 17 per cent over 1914. The Doheny companies' proportion of the State total varied considerably during the period; in 1914 it was 4.8 per cent; by 1917 it had declined to 3.4, after which time there was a steady increase until in 1919 they produced 5.3 per cent of the total.

As already stated, the first production reported for the General Petroleum Corporation is for the last half of 1916. In 1917, the first full year, its production was 4,017,693 barrels. Since that time there has been a steady decline. The 1919 production shows a decrease of about 19 per cent as compared with 1917. The General Petroleum Corporation's proportion of the State's total production has declined from 4.1 per cent in 1917 to 3.3 per cent in 1919.

The production controlled by the Santa Fe Railway Co. decreased from 3,170,517 barrels in 1914 to 2,775,271 barrels in 1916, after which it increased steadily to 3,754,299 barrels in 1919. The gain in the six-year period was 18 per cent. Except in 1916 the Santa Fe's proportion of the State total was smaller than that of any other company in the State, and the change during the period has not been significant. In 1914 it produced 3 per cent of that total and in 1919 about 3.7 per cent.

The combined production of the seven interests shown for the entire period increased from about 43 per cent of the State's total production in 1914 to almost 71.4 per cent in 1919.

Section 7. Crude petroleum stocks.

MEANING OF STOCKS.—The relation between the supply of and the demand for crude petroleum is indicated by the quantity held in storage. When production increases more rapidly than consumption the quantity held in storage increases, and when consumption exceeds production the stocks of crude petroleum are depleted; hence the quantity held in storage is considered the barometer which shows the relations between crude petroleum supply and demand. Crude petroleum in storage in all of the oil fields of the country, except California, consists of refinable petroleum, while in California, on the other hand, much of the crude held in storage is ultimately sold for fuel-oil purposes without refining. The California stocks include crude petroleum and residuum in tanks in the field, in the pipe lines and pipe-line working tanks, and in storage tanks at the tank farms and refineries of the marketing companies, but they do not include stocks in the tanks of consumers of fuel oil nor the finished and semifinished products at the refinery. A relatively small quantity of tops, i. e., unfinished naphtha distillate, and the residuum obtained in distilling the tops, is also included in the stocks. Hence there is quite a difference in the character of crude petroleum stocks in California and for other sections of the country. Approximately 30 per cent of the crude production of California is the fuel grade—in former years it was almost 70 per cent—and that part of this grade remaining in the tanks of producers and marketers is included in all the available figures for stocks. The best statistics of stocks would be those showing the heavy and light fuel grades separately. The fact that the two grades of petroleum are not distinguishable in stocks renders the statement that prices decline as storage increases and advance as storage decreases, true only in a broad sense, so far as the prices of particular grades are concerned.

For a number of years past the Standard Oil Co. (California) and the Independent Oil Producers' Agency of Los Angeles have published monthly reports covering the important features of oil field operations. The statistics on drilling and production are quite similar, and therefore they are accepted for all general purposes, but for stocks of crude petroleum there has at times been a marked difference in their statistics.

In order to ascertain the method of securing this information the Standard Oil Co. (California) was asked to explain its statistics, and under date of March 24, 1920, the following information was furnished:

The crude oil statistics published in the Standard Oil Bulletin have been compiled by the company since 1910 as an index to the general relation of consumption to production. The figures are gathered in the field and are furnished by many oil operators and producers. When the company started its monthly publication, the Standard Oil Bulletin in 1913, it felt that the statistics belonged to the industry and they were, therefore, reproduced in the Bulletin for the first time in September, 1912.

Until the latter part of 1914 the figure "Crude oil stocks" represented solely crude oil stocks in the field, in transit between field points and refineries, and at terminals. This figure was an approximation, but as the figures of production and shipments from the field were fairly close, an observation of these figures over a period of several months evidenced the relation between production and consumption. In 1915 and the early part of 1916, there was a great overproduction of refinable crude oil in the Midway Field. That part of the surplus which the company purchased was cared for by storing the oil at its Bakersfield Refinery in the Kern River fields, the tops approximating 30 per cent of the crude, going into steel tankage, and the residuum into

urban reservoir. This continued until about July, 1918, when the company had n hand approximately 7,000,000 barrels of residuum and 4,250,000 barrels of tops. hese stocks for the purpose of the company's statistical report, were carried as crude il stocks. At the end of 1919 all of the tops referred to had been exhausted and the esiduum remaining in the company's field storage was 1,400,000 barrels.

Accumulations of residuum in the field as a consequence of topping crude oil are ncommon and often the identity of the residuum as such is completely lost through ixture with crude fuel oil.

After this country entered the war, the Federal Fuel Administrator on the Pacific oast compiled his own statistics on production, consumption and stocks, and included in stocks all refinery stocks, taking into refinery stocks those tops above entioned which the company had carried as part of crude oil stocks and apparently ad carried as refinery stocks, a part of the residuum stock which the company had arried as crude oil stocks. The first statement of the Federal Fuel Administrator as published in May, 1918, and at that time the company discontinued the publica- on of its figures. The company, however, continued to compile its own statistics nd at the end of the war when the figures of the Federal Fuel Administrator were iscontinued with the statement of November, 1918, the company resumed the ublication of its figures.

Crude oil stocks, as shown in the last published statement of the company, repre- ent all crude oil stocks and residuum in fields, in transit, and at terminals, but do ot include refinery stocks. The figures of crude oil stocks as of February 29 include n unknown quantity of residuum. On this date the company had approximately ,000,000 barrels of residuum in field stocks, included in crude oil stocks. No effort s made to separately classify residuum for the reason that this product and crude fuel il, representing about 40 per cent of the California production, are generally con- idered by the trade as the same product; that is, fuel oil.

The company states, however, in this connection, that it sells as crude for fuel, or ny oil until it has passed through a refining process.

In this same connection, explaining the significance of a statement n crude petroleum stocks furnished to the Commission, the following explanation was made by the Independent Oil Producers' Agency:

This statement only shows stock conditions in respective oil fields, at tank farms, nd along pipe-line systems, and does not include stocks at bay shore refineries, nor t terminals or other distributing points; hence, does not show the amount of residuum t refineries.

Subsequently, with reference to the quantity of refinery residuum ncluded in its monthly statistics on crude petroleum stocks, informa- ion was obtained from the Independent Oil Producers' Agency that he residuum would run less than 1 per cent of its total stocks. On his basis the stocks reported by the agency as of December 31, 1919, would include about 278,000 barrels of refinery residuum. As stated bove, the Standard Oil Co. (California) reported the quantity of rude petroleum held in storage for the same date included 1,400,000 arrels of residuum.

QUANTITY IN STORAGE.—The quantity of crude petroleum held in storage in California increased from 1910 to May, 1915 (see p. 230), nd since that time there has been a gradual decrease until at the end f 1919 the quantity in storage was slightly less than that for Decem- er 31, 1910, while during 1920 there was a further reduction which lmost sank to the January, 1910, total (see p. 230). The quantity eld in storage at the end of each year from 1910 to 1920, as reported y the Standard Oil Co. (California), is given in the following table.

TABLE 16.—*Stocks of crude petroleum in California, in barrels of 42 gallons, as reported by the Standard Oil Co. (California), Dec. 31, 1909–1920.*

Year.	Barrels.	Year.	Barrels.
1909	19,000,761	1915	17,147,03
1910	20,537,053	1916	14,000,78
1911	47,003,114	1917	22,152,48
1912	45,031,760	1918	22,022,63
1913	47,600,177	1919	20,000,53
1914	35,520,284	1920	23,240,27

The period ending with May, 1915, was one of overproduction of crude petroleum and of accumulating stocks, while since that time the current production has been less than current consumption and the quantity held in storage has decreased. The large war demand for fuel oil and other petroleum products which began in 1916, accompanied by a small increase in production, resulted in heavy withdrawals from storage in 1916 and 1917; during 1918 there was little change, while in 1919 and 1920 demand was so great that notwithstanding large production, which was larger in 1920 than in any previous year, there was a large reduction in the quantity held in storage. The monthly stocks of crude petroleum in California as reported by the Standard Oil Co. (California) and the Independent Oil Producers' Agency, 1914–1920, are shown in Appendix Table 12.

Section 5. Comparison of consumption and production.

The consumption of crude petroleum in California has been greater than the annual production each year since 1915. The annual deficit has been supplied by withdrawals from stocks and particularly in 1918 and 1920 by shipments of gasoline into the Pacific coast territory from the Wyoming and Mid-Continent oil fields.

An adequate supply of crude petroleum is more vital to the Pacific coast than to any other section of the United States, because it furnishes the fuel supply for practically all of the manufacturing industries, the transportation facilities, the mining enterprises, and for the public utilities of the entire Pacific coast territory. The relation between the annual consumption and production of crude petroleum for the Pacific coast territory, as shown by variations in the quantities in storage, is presented in Table 17.

TABLE 17.—*Quantity of crude petroleum produced and consumed in California, in barrels of 42 gallons, 1910–1920.*

Year.	Consumption.		Production.	
	Total.	Excess.	Total.	Excess.
	Barrels.	Barrels.	Barrels.	Barrels.
1910	77,140,166		79,677,219	2,537,053
1911	73,985,793		93,744,044	19,758,251
1912	93,075,867		90,075,690	2,999,823
1913	93,453,573		97,357,134	3,903,561
1914	93,357,888		103,032,985	9,675,097
1915	93,901,020	1,570,228	99,330,770	
1916	101,055,228	15,110,961	91,522,263	
1917	109,352,157	11,296,729	97,207,533	
1918	105,045,413	857,540	105,887,570	
1919	105,704,551	3,881,680	101,822,764	
1920	115,081,768	8,346,013	106,735,189	

The annual totals for consumption shown above were computed by deducting from the sum of the stocks at the beginning of the year plus the year's production the quantity in storage at the end of the year.

From 1910 to 1914, inclusive, production exceeded consumption and during these five years 38,827,513 barrels were placed in storage. Beginning in 1915 and continuing through 1920 consumption exceeded production, the excess for the six years being 36,286,003 barrels. During the eleven years from 1910 to 1920 production and consumption were almost equal, the excess of production being only 2,541,510 barrels. The largest excess of production occurred in 1910, while 1911 and 1914 also show an excess of approximately 11,000,000 barrels each year, while in the latter year consumption had increased 40 per cent over 1910. The largest excess of current consumption over current production occurred in 1916 and 1917, when it was 13,111,000 and 11,586,000 barrels, respectively. The very large consumption in these years was the result of the heavy war demand. The year 1920 shows an excess of 8,240,000 barrels over the highest annual production ever recorded for California. The Wyoming and Mid-Continent oil fields were also drawn upon for very large supplies of gasoline. At the end of 1920 consumption was 47,417,772 barrels, or 71 per cent greater than in 1910, while the production had increased 28,023,618 barrels, or 36 per cent.

At the beginning of 1910 the surplus crude petroleum held in storage was 19,698,761 barrels, while on December 31, 1920, it was 22,240,271 barrels, or only 2,541,510 barrels greater than at the beginning of 1910. While the actual quantity held in storage was slightly larger at the end of 1920 than it had been 11 years earlier, the quantity held in storage was relatively smaller when the large increase of 71 per cent in the annual consumption is taken into consideration. In 1910 the quantity in storage was sufficient to supply the demand for 106.5 days, while the quantity in storage at the end of 1920 was only sufficient for 70.3 days.

Section 9. Importance of an adequate supply.

An adequate supply of crude petroleum is more important for the Pacific coast than for any other section of the country, as it constitutes the main or only source of fuel for heating purposes, marine, and river navigation, public utilities, railways, and for the mining and manufacturing industries. Even the dependence upon gasoline and other motor fuels is greater in California than in any other section of the country for use by the agricultural and horticultural industries. The California oil fields are drawn upon to supply most of the industries of Arizona, California, Nevada, Oregon, and Washington with fuel oil and refined products. The absence of an adequate supply of coal and its relatively high price make fuel oil a very important factor in the entire Pacific coast region.

During the 11-year period 1910–1920 consumption and production have been about equal, 1,037,703,233 barrels having been consumed, while the 11-year production has been 1,040,244,742 barrels. Consumption has shown quite a steady increase from 66,543,000 barrels in 1910 to 114,061,000 barrels in 1920, which represents an increase of 71 per cent. During the same period production has fluctuated considerably, from 1910 to June, 1915, it exceeded consumption, while since that time consumption has been

greater and the California industry has drawn upon stocks until at the end of 1920 the quantity held in storage was only about 2,542,000 greater than on January 1, 1916. The largest annual production was recorded in 1920, when 105,721,000 barrels were produced, or about 8,240,000 less than the same year's consumption. The consumption will probably continue to increase. This condition has caused anxiety regarding the ability of the California industry to produce sufficient crude petroleum to meet the growing demand. During the latter part of 1919 and in the first half of 1920 there was a shortage of gasoline and a threatened shortage of fuel oil. In order to relieve this shortage about 20,000,000 gallons of gasoline in 1919 and approximately 24,000,000 gallons in 1920 were secured by the Standard Oil Co. alone from the Wyoming, the Mid-Continent, and Mexican oil fields.

There has been a marked increase in the production of crude petroleum during the latter part of 1920 and in the early months of 1921, and the situation on the Pacific coast is not as unfavorable as it appeared in the early part of 1920. At the close of 1920 the Pacific coast petroleum industry was in a better position to take care of current demands than it had been for many months previous. In June, 1921, the average daily production of crude petroleum in California was 337,000 barrels as compared with 273,000 barrels in 1920. This was an increase of 64,000 barrels per day, or 23 per cent over the same month of 1920. The production for the first half of 1921 established a new record for the California oil fields, and should the same average be maintained during the remainder of the year the total production for 1921 would exceed 120,000,000 barrels. Another significant fact in this connection is that for the first time in eighteen months the quantity of crude petroleum held in storage beginning with January, 1921, showed an increase; in other words, while consumption increased it was exceeded by production.

In addition to the present increased production in California, indications are that substantial relief may be expected from the Mexican oil fields. Announcement has recently been made that two of the largest oil companies in California—the Standard Oil Co. (California) and the Union Oil Co. of California—have already taken steps to relieve the shortage by importing large quantities of Mexican fuel oil and "tops," i. e., unfinished naphtha distillate. The tops are to be refined into gasoline, thus furnishing an entirely new supply of this product. In addition to this action by the oil companies themselves, private companies are building a fleet of tank steamers which will operate between California and Mexican ports.[1]

The question of an adequate supply of petroleum products for the Pacific coast depends largely upon the ability of the California industry through more extensive exploration and drilling to increase the present production of the California oil fields; to increase efficiency of refinery operations so as to recover a larger proportion of gasoline from the crude petroleum to refine the greatest possible quantity of all grades of crude petroleum, leaving only the residuum to be utilized with strictly nonrefinable crude for fuel purposes, and to supplement the domestic supply by imports to meet whatever shortage may result through the failure of the California fields to keep up with current demands.

[1] Oil, Paint, and Drug Reporter, Jan. 17, 1921, p. 9.

CHAPTER IV.

WITHDRAWALS OF OIL LANDS.

Section 1. Reasons for withdrawals.

In 1909 large areas of oil lands in California and other States were temporarily withdrawn from disposition under the public land mineral laws. The main reasons for the withdrawal of these lands were: To prevent overproduction and the consequent waste of crude petroleum; to reserve a supply for the Navy; and to preserve the oil lands from disposition under the placer mining law, pending the enactment of legislation by Congress providing for a more satisfactory method of mineral land administration. Much of the land included in the areas withdrawn was patented land and a large part of the remainder was claimed under the placer mining law by various companies and individuals. This led to a great deal of litigation, much of which was still pending in February, 1920, when the mineral land leasing law was enacted, which radically altered the method of administering the public domain underlaid by nonmetallic minerals, including petroleum, by providing for the leasing of such lands instead of disposing of all title to them by patent, as the law stood prior to the enactment of this mineral leasing law.

Section 2. Petroleum public land laws.

A proper understanding of the effect of the withdrawals of the oil land can be secured only after some consideration of the petroleum land laws, under which a large part of the lands withdrawn were claimed by various interests.

The first general mining law of the United States covering the public domain was the "lode" law, enacted in 1866, which provided that mining claims "upon veins or lodes of quartz or other rock in place bearing gold, silver, cinnabar, lead, tin, copper, or other valuable deposits * * * may be located." In 1870 the placer law covering minerals not in veins or lodes was enacted providing for the location of placer claims "under like circumstances and conditions and upon similar proceedings to those for lode claims." These mining laws were amended in certain particulars in 1872, but there was no further change in them for 25 years. The petroleum placer law approved February 11, 1897, provided that lands chiefly valuable for petroleum might be located "under the provisions of the laws relating to placer mining." It appears that public petroleum lands had been taken up under the placer law for a number of years before the passage of this act, but in August, 1890, the Secretary of the Interior, in the Union Oil case, decided that petroleum lands could not be located and patented under the placer laws.[1] The act of February 11, 1897, was the result of this decision.

[1] Revised Statutes, sec. 2329, and 14 Stats., 251.
[2] Revised Statutes, sec. 2329, and 16 Stats., 217.
[3] Revised Statutes, sec. 2331, and 29 Stats., 526.
[4] 19 Land Decisions, 329.

The more important provisions of the placer law as applied to petroleum claims at the time of the withdrawals in 1909 were: That no locations could be made without a prior discovery of valuable oil deposits in place on the claim; that no claim for an individual should exceed 20 acres, or for an association of eight persons, 160 acres; and that discovery must be made on each claim. There was no limit, however, to the number of claims which might be located by a single individual or association.

The placer mining laws of the United States were enacted long prior to the discovery of crude petroleum or gas on the public domain. Unlike lode or placer deposits of gold or other minerals found on or near the surface, petroleum is ordinarily not found until after expensive drilling, in some cases to depths of 4,000 feet or more. However, the location of a mineral claim was not a valid claim as against second parties until mineral had been discovered, and could be held prior to discovery only by diligent prosecution of work leading to discovery. It could not be held as against the Government until discovery had actually been made.

The provision of the placer law that an association of eight persons could perfect title to 160 acres under one discovery, while an individual or corporation could perfect title to only 20 acres under one discovery led to extensive fraud through the use of dummy locators by individuals and corporations that desired to secure title to the same acreage by one discovery under an association claim as would require eight discoveries under individual claims. A dummy locator may be defined as a person who locates or whose name is used to locate mining claims on public land when he himself has no interest in the claim.

Section 3. Withdrawals of oil lands.

EARLY WITHDRAWALS.—The first withdrawal of public lands due to the presence of petroleum deposits was on March 17, 1885, when the Commissioner of the General Land Office requested the register and receiver at Humboldt, Calif., to withhold certain land reported to contain petroleum deposits "from disposal by the Government, unless otherwise specially instructed."[4] There is no further record of oil land withdrawals until 1900, when certain lands in California and Wyoming were withdrawn from agricultural entry on representations made by citizens of those States that the lands contained valuable deposits of crude petroleum.

The more recent withdrawals of oil lands in California are comprised under two periods: (1) The period of withdrawal from agricultural entry, 1900–1909; and (2) the period of withdrawal from mineral entry, September 27, 1909, to February 25, 1920.

WITHDRAWALS FROM AGRICULTURAL ENTRY.—As already stated, certain lands were withdrawn from agricultural entry in California and Wyoming in 1900. These withdrawals protected the oil operators from agricultural entrymen pending the determination of oil-bearing character of the lands. From 1900 to 1909 large areas of land were withdrawn from agricultural entry, a large part of which was restored from time to time as evidence of its nonoil-bearing

[4] U. S. Geological Survey Bulletin 613, p. 66.

character appeared, but in some cases the restored land was later again withdrawn.

The reason for practically all of the oil land withdrawals made prior to 1909 was to protect legitimate oil operators who were trying to secure title to the land by making a discovery of crude petroleum from fake homestead entrymen, who were attempting to secure title to valuable oil lands under the homestead law. The lands were not withdrawn from mineral entry prior to September 27, 1909.

WITHDRAWALS FROM MINERAL ENTRY.—While a number of withdrawals from agricultural entry were made prior to September 27, 1909, the first withdrawal of petroleum lands from mineral entry in California was made under temporary petroleum withdrawal No. 5, dated September 27, 1909, and covered 2,871,000 acres of land in California and 170,000 acres in Wyoming. This order, which was signed by A. C. Rizer, Acting Director of the United States Geological Survey, and approved by Frank Pierce, Acting Secretary of the Interior, was as follows:[a]

> In aid of proposed legislation affecting the use and disposition of the petroleum deposits on the public domain, all public lands in the accompanying lists are hereby temporarily withdrawn from all forms of location, settlement, selection, filing, entry, or disposal under the mineral or nonmineral public land laws. All locations or claims existing and valid on this date may proceed to entry in the usual manner after field investigations and examination.

The acreage withdrawn included large tracts of land that had already been patented, which, of course, were not affected by the withdrawal order. Although this withdrawal order was dated September 27, it apparently did not come to the general knowledge of the oil men in California until some time in November.

As stated in the withdrawal order, the land was withdrawn in aid of proposed legislation, but there were also other reasons for the withdrawal. One of these was the importance of reserving a sufficient acreage of oil lands to afford a supply of fuel oil for the United States Navy in future years. Another was to prevent any increase of the overproduction of crude petroleum in California and the consequent waste of its more valuable constituents, which takes place while in storage. It was also feared that under the inadequate placer law the oil supply of the future would fall into the hands of monopolistic interests. These reasons were in a way but different forms of the idea of conservation of the natural resources of the Nation, that was at that time becoming general throughout the country.

PROPERTY RIGHTS ACQUIRED.—The withdrawal order of September 27, 1909, was understood as cutting off all but valid legal claims based upon the actual discovery of crude petroleum and held in compliance with the placer-mining law. At this period there was great activity in certain parts of the withdrawn lands in California, in the development and exploitation of new fields. Naturally, the withdrawal order caught the operators in every conceivable stage of development from those who had made only "paper" locations to those who had almost drilled to the petroleum deposits.

In order to protect claimants under the placer law, who had spent large sums of money in drilling for crude petroleum, or in preparing to drill, Congress passed the Pickett Act, which was approved by the President on June 25, 1910. This act, after expressly authorizing

[a] U. S. Geological Survey Bulletin 623, p. 190.

the President to make temporary withdrawals of public lands, provided:[7]

> That the rights of any person who, at the date of any order of withdrawal heretofore or hereafter made, is a bona fide occupant or claimant of oil or gas bearing lands, and who, at such date, is in diligent prosecution of work leading to the discovery of oil or gas, shall not be affected or impaired by such order so long as such occupant or claimant shall continue in diligent prosecution of said work.

The above proviso was inserted at the request of a delegation of California oil operators who appeared before the public lands committees of both Houses of Congress in May, 1910, and urged that the withdrawal order, if valid, would cut off the rights of every prospector who had not made a discovery, although he was in actual bona fide possession of the land and engaged in diligent prosecution of work leading to discovery at the date of the order. The leading decision of the California Supreme Court recognizing the rights of one in diligent prosecution of such work as against adverse claimants was cited to the committees,[8] and the relief asked for and granted was that the claimant be given the same rights against the Government that he already had against adverse claimants.

WITHDRAWAL OF JULY 2, 1910.—Under the provisions of the Pickett Act the President confirmed the prior withdrawals of oil lands by the following order made on July 2, 1910:[9]

> It is hereby ordered that those certain orders of withdrawal made heretofore * * * in so far as the same include any of the lands hereinafter described, be, and the same are hereby ratified, confirmed, and continued in full force and effect, and subject to all the provisions, limitations, exceptions, and conditions contained in the act of Congress entitled "An act to authorize the President of the United States to make withdrawals of public lands in certain cases," approved June 25, 1910, there is hereby withdrawn from settlement, location, sale, or entry, and reserved for classification and in aid of legislation affecting the use and disposal of petroleum lands belonging to the United States, all of those certain lands of the United States set forth and particularly described as follows, to wit: * * *

The withdrawal order of July 2, 1910, was the first order actually approved by President Taft, the preceding orders having been finally approved by the Secretary or the Assistant Secretary of the Interior.

ASSIGNMENT RELIEF ACT.—After the passage of the Pickett Act further relief of another character was asked by the oil operators as the result of a decision made in January, 1911, by the Secretary of the Interior in the Bakersfield Fuel and Oil case. It was held in this case "that a placer location of 160 acres, made by eight persons and subsequently transferred to a single individual before discovery, can not be perfected by the transferee upon a subsequent discovery to over 20 acres."[10]

Relief from this ruling was asked by a committee of California oil producers, as practically all the oil claims that had been made by associations of eight persons in California had been transferred to a single person or companies prior to discovery. This relief desired was granted in an act approved March 2, 1911, which provided that patent should not be denied because of the assignment or transfer of an association claim to one person or corporation before discovery "if such claim is in all other respects valid and regular."[11]

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[7] 36 Stat., 847.
[8] Boggs v. Merriman, 136 Cal., 308; 141 id., 37, 39.
[9] U. S. Geological Survey, Bulletin 428, p. 122.
[10] 39 Land Decisions, 451, and 38 Land Decisions, 89.
[11] 36 Stat., 1235.

NAVAL PETROLEUM RESERVES.—Although the future needs of the United States Navy for fuel oil was one of the reasons for the withdrawals of public oil lands, such fact was not stated in any of the withdrawal orders prior to 1912, nor was any portion of the lands withdrawn definitely assigned to the Navy at the time of the withdrawal. In 1912, however, two naval petroleum reserves were set aside from the withdrawn lands. The area comprised in these two reserves was included within the limits of the land withdrawn on September 27, 1909, so that the naval reserves were not new withdrawals, but only the setting aside of certain withdrawn areas for a definite purpose.

Naval reserve No. 1 was set up on September 2, 1912, and includes 37,740 acres in the Elk Hills and Midway fields, located in Kern County, Calif. Naval reserve No. 2 was set up on December 13, 1912. It is located south of and contiguous to Naval reserve No. 1 and includes 30,080 acres. Much of the land in both naval reserves in California was patented land.

OPERATING AGREEMENT ACT.—Suits brought by the United States Government in 1913 against claimants on the withdrawn lands in California also included the marketing companies purchasing crude petroleum from these lands. The marketing companies thereupon, in the fall of 1913, refused to continue purchasing the crude petroleum unless they were protected from loss by bond or otherwise. In the spring and summer of 1914, therefore, representatives of the California oil operators appeared before the public lands committees of both houses of Congress, urging relief from this condition, as many of them could not give further bond and would be forced to close down, to the permanent injury of the property. In response to this appeal Congress passed the operating agreement act, which was approved August 25, 1914. This act gave the Secretary of the Interior authority to enter into agreements with producers on withdrawn lands relative to the disposition of the oil or gas produced therefrom, or the proceeds thereof, pending final determination of title thereto by the Secretary of the Interior.[1]

The Secretary of the Interior entered into over 40 such contracts, but none of them in the naval reserves, because by agreement between the Secretary of the Navy, the Secretary of the Interior, and the Attorney General suits were brought against claimants in the naval reserves. Under practically all of the agreements made by the Secretary of the Interior with California producers one-eighth of the proceeds from the crude petroleum produced was put in escrow to await decision as to the ownership of the land. Where there were adverse claimants, however, which was especially the case in Wyoming, the entire proceeds, less operating expenses, were impounded.

Section 4. Litigation involving withdrawn lands.

NATURE OF THE LITIGATION.—This litigation consisted of three classes which were: (1) Suits to enforce the provisions of the withdrawal orders and to protect the property against trespassers, (2) suits against the Southern Pacific Co. to cancel patents, which it was alleged had been obtained by fraud, and (3) adverse proceedings in

[1] 38 Stat., 708.

the General Land Office against the granting of patents. The second class of suits, those against the Southern Pacific Co., did not involve the withdrawal orders, and could have been prosecuted even if no withdrawals had ever been made. They are discussed here, however, as they affected land in the withdrawn areas, and because they would probably never have been brought had the withdrawals not been made. Many of the so-called withdrawal suits also did not actually involve the withdrawal orders, as they were based upon fraudulent locations and could also have been prosecuted if the lands had not been withdrawn. But all suits involving withdrawn lands in California are discussed here, as they all resulted from investigations brought about by resistance to the withdrawal orders.

The withdrawal of September 27, 1909, was quite generally disregarded in both California and Wyoming. It was regarded by many claimants as clearly invalid, as being beyond the President's authority, the Constitution having placed the disposition of the public lands in Congress, and Congress had enacted the placer mining laws, which covered the only method of disposition of petroleum public lands, and had not at any time prior to June 25, 1910, authorized the President to withdraw such lands from disposal. Suits were brought by the Government in the United States district courts, both in California and Wyoming, to enforce compliance with the withdrawal order of September 27, 1909. In the California suits there were also allegations of fraud in the use of dummy locators.

Midwest Oil Co. case.—The case against the Midwest Oil Co., in Wyoming, being free from disputes of fact and the other complications of the California suits, was selected by the Attorney General for the purpose of securing a speedy determination of the President's authority to make the withdrawal. The bill in the Wyoming case against the Midwest Oil Co. was filed in February, 1913, and on June 14, 1913, Judge Riner, of the United States district court in Wyoming, rendered a decision dismissing the bill upon the ground that the order of the President was ineffective to prevent a lawful location of the land in controversy under the mining laws.[33] The Attorney General appealed the case to the circuit court of appeals for the eighth circuit, which certified the main questions to the United States Supreme Court for answer.[34] The Supreme Court in its decision on February 23, 1915, in the United States v. Midwest Oil Co.[35] reversed the district court and upheld the power of the President, even in the absence of specific authority from Congress, to withdraw public lands and reserve them for public purposes.

After the validity of the withdrawal orders issued prior to July 2, 1910, had been thus established a large number of other suits were brought, especially in California, to have receivers appointed and to protect the property during the pendency of proceedings in the Interior Department to determine ownership of the lands as between the claimants and the Government. Only five suits had been brought prior to February 23, 1915, when the Midwest decision was rendered. During the spring and summer of 1915, 25 such suits were filed. Up to February 28, 1918, there had been in-

[33] 208 Fed., 161.
[34] Report U. S. Attorney General, 1913, pp. 40-41, and 1914, p. 37.
[35] 236 U. S., 459.

stituted 55 suits in California, and on June 30, 1920, there were 40 California cases still pending in the district court and 2 in the higher Federal courts.

SUITS TO RECOVER WITHDRAWN LANDS FROM TRESPASSERS.—There were three classes of charges in the withdrawal suits: (1) That the claimants were not engaged in the diligent prosecution of work leading to discovery at the date of withdrawal; (2) that there were "dummy" locators involved; (3) that there was subterfuge, that is, the claims were based on the discovery of gypsum or fuller's earth, but the land was really desired because of the value of its petroleum deposits.

The first class, where there was no diligent prosecution of work leading to discovery, was the only one which, strictly speaking, involved the withdrawal orders. The other two classes—dummy locators and subterfuge discoveries—had no connection with the withdrawal policy. Dummy locations were contrary to the provisions of the placer mining law, which required a bona fide association of eight persons to locate a claim of 160 acres under one discovery. The fraud in the use of dummies consisted of one individual or corporation seeking by this device to acquire a larger area of public lands with one discovery than the law allowed.

A prominent California oil operator, Thomas A. O'Donnell, stated before a committee of Congress in 1914 that over 90 per cent of all locators in California were dummies. Mr. O'Donnell said:[25]

> It is my judgment, gentlemen, that 90 per cent of all locators in California on these lands were dummy locators, in fact * * * I would like to go further now and say that 90 per cent of all locations that were ever made out there, including patented lands where patents have been issued heretofore, were the same kind of locations. It was the custom of my lifetime.

The result of these suits was the granting of relief to the Government in a large number of cases, either by injunction or the appointment of a receiver, who was empowered to protect the property and impound the proceeds until the title to the land was settled. As to determining the title to the lands in dispute the courts were powerless, this being the function of the General Land Office and the Secretary of the Interior. Adverse proceedings were therefore instituted in the General Land Office against applications for patents, so as to determine the title to the land, but most of these contests were still undecided when the mineral leasing law was passed in February, 1920.

SOUTHERN PACIFIC CASES.—The first suit against the Southern Pacific Co. was brought in December, 1910, by Attorney General Wickersham, and involved about 6,000 acres of land in Naval reserve No. 1, in the San Joaquin Valley in California, which had been patented to the Southern Pacific in 1904. It was known as the Elk Hills suit. Six other suits were later filed, involving about 160,000 acres of land in the San Joaquin Valley, which had been patented to the Southern Pacific in the early nineties. The latter six suits were afterwards consolidated and heard as one case. As already stated, the Southern Pacific suits were quite dissimilar to the withdrawal suits, the facts, principles, and issues all being entirely different. The fraud alleged in the Southern Pacific suits was that the Southern

[25] Hearings on Exploration for and Disposition of Oil, Gas, etc., House Committee on Public Lands, 63d Cong., 2d sess., pp. 91, 223.

Pacific officers and agents knew that the lands were mineral lands at the time the company filed its selected list for agricultural lands and received patent. The act of July 27, 1866, under which the Southern Pacific Co. received patents for the land, expressly excepted and reserved mineral lands, except those containing coal and iron, from the operation of the grant. The seven Southern Pacific suits mentioned above involved all the oil lands owned by the Southern Pacific Co. in California except two small parcels of a few hundred acres.

The Elk Hills case, involving about 6,000 acres of land, valued at $18,000,000, was submitted to the district court in January, 1915, and in June, 1915, a decision was handed down favorable to the Government, holding the lands involved to be mineral in character, and that the patent therefor had been procured through fraud,[1] that is, that the railroad officials knew these lands to be oil lands when the patents were applied for in 1904. The company appealed to the circuit court of appeals on February 1, 1916, and on May 6, 1918, this court reversed the decision of the district court.[2] On August 3, 1918, Attorney General Gregory docketed an appeal to the Supreme Court of the United States. The decision of the Supreme Court rendered November 17, 1919, reversed the circuit court of appeals and confirmed the decision of the district court in favor of the Government.[3]

The consolidated suit, involving about 160,000 acres, valued at over $500,000,000, was submitted to the district court in April, 1918, and on August 28, 1919, a decision was handed down by the district judge adverse to the United States.[4] The deciding feature of the consolidated case seems to have been that the railway company offered to sell and did sell some of the lands at a few dollars per acre, thus showing conclusively, as interpreted by the district judge, that the railroad officials did not know that the lands were oil lands when they applied for and received the patents for them. In December, 1919, Attorney General Palmer announced that there would be no appeal by the Government from the adverse decision of the district court[5] in the consolidated case.

Section 5. Effects of withdrawals on production.

GENERAL EFFECT OF WITHDRAWALS.—A large area of oil lands in California was withdrawn from location in 1909, under the mineral laws, after there had been extensive drilling for a number of years on these lands. However, there was little interference with the continued development of these withdrawn lands until after the decision of the Supreme Court in the Midwest case in February, 1916. After this date the lands remained practically withdrawn from development until after the enactment of the mineral land leasing law in February, 1920. When the mineral land leasing law is in full operation the development of these lands, which have been arrested for so many years, can be continued. It must be understood, of course, that the oil lands withdrawn were only a small part of the total area of such

[1] 235 Fed., 468.
[2] 249 Fed., 766.
[3] 251 U. S., 1. See also [illegible] 254 U. S., 57 [illegible] and 1919, p. 58.
[4] 260 Fed., 577.
[5] For the Attorney General's explanation of his reasons for not appealing this case, see the extract from the annual report of the Attorney General for 1920, quoted in the Yearbook, page 251.

lands in California, as much of the oil territory of the State is on privately owned lands.

ACREAGE WITHDRAWN.—In California the withdrawal order of September 27, 1909, covered 2,267,000 acres, which included a large acreage of patented land. Further withdrawals were made in 1909 and 1910, which in spite of the restoration of 378,456 acres as noncoil-bearing land, increased the acreage withdrawn to 2,482,750 on May 15, 1910. The greater part of this acreage was patented land. By June 30, 1912, restorations of noncoil-bearing lands had reduced the outstanding withdrawals to something over 1,500,000 acres. In April, 1914, outstanding withdrawals covered 1,392,738 acres, of which 969,458 acres were patented, 105,306 acres were covered by pending applications for patent, and 317,974 acres had no claim filed against them, although mostly covered by unfiled claims. The acreage remaining withdrawn on April, 1915, June 30, 1916, and June 30, 1917, is shown in the following table:

TABLE 10.—*Acreage of patented and unpatented lands withdrawn, 1915–17.*

Status.	April, 1915.[1]	June 30, 1916.[2]	June 30, 1917.[3]
	Acres.	Acres.	Acres.
Unpatented land	1,055,194	980,194	980,000
Patented land:			
Mineral entries	67,707	31,343	31,000
Agricultural entries	60,911	61,000	61,000
Railroad selections	160		
Vacant or covered by mineral locations	220,000	202,000	202,000
Vacant or covered by agricultural entry		201,000	201,000
Total unpatented	1,403,972	1,475,537	1,475,000
Total withdrawn	1,392,738	1,257,229	1,257,000

[1] Report Committee on Petroleum, California Council of Defense, p. 62.
[2] Hearings on leasing bill, Joint Conference, 64th Cong., 2d sess., p. 62.
[3] Report Commissioner General Land Office, 1917, p. 3.

On June 30, 1920, there were outstanding withdrawals of 1,257,229 acres with very little change in the status as compared with that of three years before, except for the transfer of about 6,000 acres from the patented lands to the vacant lands, through the winning of the Elk Hills suit against the Southern Pacific Co. in November, 1919.

STATUS OF LAND IN NAVAL RESERVES.—The most productive oil land in the withdrawn areas in California is in the naval reserves. The status of the land in these reserves did not change much prior to the winning of the 6,000-acre suit against the Southern Pacific Co. by the Government in 1919. The status in 1918 and 1920 is shown by the following table:

TABLE 11.—*Status of withdrawn oil lands in the naval reserves, 1918 and 1920.*

Naval reserve.	1918	1920
Ownership:	Acres.	Acres.
Southern Pacific Co.	28,760	7,760
Others, including Government	1,240	1,240
Not patented	30,000	30,000
In litigation	160	160
Not in litigation	28,840	28,840
Total	60,000	60,000

TABLE 19.—*Status of withdrawn oil lands in the naval reserves, 1918 and 1920*—Con.

Naval reserve.	1918	1920
No. 2.		
Patented—	Acres.	Acres.
Southern Pacific Co.	15,360	15,360
Other	2,880	2,880
Not patented—		
In litigation	5,120	5,120
Not in litigation	2,880	2,880
Total	26,240	26,240

In reserve No. 2 about 15,000 acres is proven oil land, of which about 9,000 acres are patented and about 6,000 acres unpatented.

The land "in litigation" refers to lands in suits under the withdrawal orders. The Southern Pacific patented land in both reserves was also in litigation in 1918, but under the law granting the lands, and not under the withdrawal orders. The principal interests in the 8,160 acres in litigation in naval reserve No. 2 in 1918 were the following:

	Acres claimed.
Honolulu Consolidated Oil Co.	2,720
Standard Oil Co.	1,920
Associated Oil Co.	880
North American Oil Co.	640
Midland Oil Fields Co.	480
United Oil Co.	400
Northern Exploration Co.	320
Union Oil Co.	320
Consolidated Mutual Oil Co.	280
Boston Pacific Oil Co.	160
Caribou Oil Co.	80
General Petroleum Co.	80
A. G. Wilkes	80
Record Oil Co.	40
Other	80
Total	8,160

ACREAGE COVERED BY SOUTHERN PACIFIC CASES.—The withdrawals did not affect the patented lands, the acreage of which is shown above in the various tabulations. The suits against the Southern Pacific Co. for the annulment of patents had virtually the same effect upon a large acreage of the patented lands, however, as the withdrawal suits had upon the unpatented withdrawn lands, as these suits stopped development in the Southern Pacific patented lands for a number of years. There was an agreement with the Southern Pacific Co. during the pendency of the suits that it would drill only offset wells.

The first of the Southern Pacific suits was brought in 1910, and by the middle of 1915 seven suits had been filed covering about 166,000 acres of patented land. This land included the alternate sections in the San Joaquin Valley oil fields, extending from about 10 miles north of Coalinga to about 10 miles south of Maricopa, with an estimated value in 1915 of $500,000,000. The suits involved all the land granted to the railroad by the Government. This land was withheld from development during the pendency of the suits, which were decided in the fall of 1919.

The Government won as to about 6,600 acres in naval reserve No. 1 and lost as to about 160,000 acres. The 6,000 acres thus remain withdrawn from development, but the 160,000 acres reverted to the Southern Pacific Co., which can now undertake intensive development if it so wishes.

ESTIMATED PETROLEUM CONTENTS.—It was stated at the hearing on oil-leasing lands before the House Committee on the Public Lands in 1918 that there were 700,000,000 barrels of crude petroleum in the 2,000,000 acres of withdrawn lands.[24] If this estimate is correct, then a large part of the oil in the withdrawn lands was in the naval reserve in California, as the Navy Department estimated in 1918 that there were over 450,000,000 barrels of crude petroleum in the two California naval reserves.[25] An official of the Geological Survey estimated in 1920 that in the 2–5 of naval reserve No. 2 and the 5–8 of naval reserve No. 1, the title to which will probably be retained by the Government, there were about 250,000,000 barrels of crude petroleum.

In 1916 the Secretary of the Interior estimated that the petroleum remaining in the ground in California amounted to 2,345,000,000 barrels.[26] Allowing for the crude petroleum produced since that date there would remain in 1920 about 2,000,000,000 barrels, so that the entire contents of the two naval reserves would be about 20 per cent of the total estimated petroleum deposits of the State, of which a little more than one-half was in land belonging to the Government in the two reserves, and therefore subject to the withdrawal orders. There is also, of course, a large quantity of petroleum deposits in the withdrawn lands belonging to the Government outside the naval reserves.

ESTIMATED VALUE OF LANDS.—It has been estimated that the withdrawn lands to which the Government still retains title had a market value in 1916 of not less than $150,000,000. The lands involved in the Southern Pacific suits were estimated to be worth over $500,000,000.

WELLS DRILLED ON WITHDRAWN LANDS.—Twenty-seven oil wells had been drilled in naval reserve No. 1 up to 1917. Of these wells three entered the oil sand but were shut down and not producing. On June 30, 1920, there were no producing oil wells on the unpatented land in this reserve. In 1916 there were said to be 315 producing wells in naval reserve No. 2, of which 175 were on patented land and 140 were on unpatented land. Of the 175 wells on patented lands 94 were on the Southern Pacific land, which was involved in the Government suits. On November 1, 1917, there were 322 producing wells in naval reserve No. 2, of which 221 were on patented land and 101 on unpatented land. Of the 221 on patented land 80 were on land involved in the Southern Pacific suits and 93 on lands of the Standard Oil Co. (California). On February 25, 1920, when the mineral land leasing bill was approved, there were 330 producing wells in naval reserve No. 2, of which 232 were on patented land and 98 on unpatented land. In 1916 the number of wells on the un-

[24] Hearings on oil leasing lands, House Committee on the Public Lands, 65th Cong., 2d sess., p. 323.
[25] [illegible]
[26] [illegible]

patented withdrawn land both inside and outside the naval reserves was said to be 653.

PRODUCTION FROM WITHDRAWN LANDS.—The contracts made by the Secretary of the Interior with producers under the act of August 25, 1914, covered unpatented land outside the naval reserves. The number of contracts, the average covered, and the production from lands under these contracts are shown in the following table:

TABLE 20.—*Crude petroleum produced on acreage under contract with the Secretary of the Interior, August, 1914, June 30, 1920.*

Year.	Contracts.	Area covered.	Production.
	Number.	Acres.	Barrels.
Up to June 30, 1917	45	7,200	2,005,719
Year ending June 30—			
1918	45	7,200	3,427,000
1919	40	6,160	3,847,000
1920	35	6,080	3,576,000
Total			12,855,719

The lands in the hands of the receiver under the suits by the Government are in the naval reserves. Up to June 30, 1917, there had been produced from these lands over 10,000,000 barrels of crude petroleum, and up to January 1, 1918, a total of 13,855,719 barrels. On January 30, 1920, there was over $22,000,000 in escrow under these suits, which would probably represent a total production of about 20,000,000 barrels of crude petroleum from these lands.

The total production of naval reserve No. 2 up to February, 1918, was approximately 41,300,000 barrels, of which 47 per cent, or 19,646,000 barrels, was from unpatented land. The production at that time was at the rate of 4,500,000 barrels per year. The production from naval reserve No. 2 from March 1, 1915, to October 1, 1916, was 9,600,000 barrels. The Southern Pacific was then producing 17 per cent of the crude petroleum in naval reserve No. 2 from patented land which was in litigation. The daily production of naval reserve No. 2 was 41,460 barrels in 1916. Up to November 1, 1917, the total production of this naval reserve was 72,000,000 barrels, and up to December 31, 1919, it was 91,000,000 barrels, with a value of $100,480,000. The production for the year ending December 31, 1919, was 9,800,000 barrels. In 1920 the 98 wells on unpatented land in naval reserve No. 2 were producing a total of 9,082 barrels of crude petroleum daily.

In 1918 the Southern Pacific Co. was operating 31 wells in naval reserve No. 2, which were producing 12,300 barrels per day. In the same year it was estimated that naval reserve No. 2 was producing 15 per cent of the monthly production of California. In 1919 the total production of California was about 101,000,000 barrels, while the production of naval reserve No. 2 was 9,800,000 barrels, so that its production was about 10 per cent of the total production of the State.

The importance of the withdrawn lands in California is indicated by the remarks made by Louis Titus, representing a number of

California oil operators, at a congressional committee hearing in 1918, Mr. Titus said:[2]

Why, in California we have more proven oil lands tied up in litigation with the United States Government than are known to exist in the whole State of Wyoming. We have more production on land that is tied up in litigation than the entire State of Wyoming produces at the present time; some of the very richest land in California—in fact, all of it that is tied up is very high class and highly productive oil land.

Figures compiled early in 1919 by the California State Mining Bureau showed that there were 19,745 acres of proven oil land in that State the titles to which were affected by the withdrawals. There were 653 wells on this land, and their total production up to that time amounted to over 76,000,000 barrels.

DISREGARD OF WITHDRAWAL ORDERS.—It would appear from the number of wells drilled and from the production on withdrawn lands, as shown above, that the withdrawal orders were very generally disregarded. A number of statements made before congressional committees, in trade papers, and elsewhere bear out this statement. In May, 1910, in response to a question as to what had been the result of the oil land withdrawals upon the oil business in California, T. A. O'Donnell, a representative of the California operators, replied:[3]

Surprising to say, it has not had a great deal of effect as yet.

A leading oil-trade journal in its issue of August 25, 1910, had the following comment in regard to operations on the withdrawn lands:[4]

Despairing of getting any satisfaction from Washington, it looks as though the big companies have decided to go ahead with the development and take out all the oil they can without applying for any patents, holding onto the land as long as the Government refrains from hosting them by active legal proceedings or physical force. It is believed that they are convinced that it will be possible to carry on business for years in this way, and that in the end there is no real danger of their losing out.

The Attorney General, in his Annual Report for 1913, stated:[5]

These reservations (withdrawals) were very generally disregarded in California, also in Wyoming, and perhaps elsewhere.

At a hearing held in 1917, J. N. Gillett, representing the oil operators in California, in response to a question as to whether the withdrawal order of September 27, 1909, affected production, stated:[6]

No, because they continued to work right along in the development as well and were spending millions of dollars; and only about three years ago they commenced shutting down. The Government permitted the wells to go on; wells were drilled and there was great activity for four or five years.

At a hearing held in 1916, Frank A. Short, representing California oil operators, stated that over $18,000,000 had been expended in the development of the withdrawn lands.[7]

DRILLING OF WELLS PROHIBITED.—There were three classes of cases in which the drilling of new wells was prohibited except by permission of the Government. These were on lands covered by the Southern Pacific suits, the withdrawal suits, and the operating contracts. In the Southern Pacific cases over 160,000 acres of patented land were involved. In 1915 an agreement between the Government and the

[2] Hearings on oil leasing bills, House Committee on the Public Lands, 65th Cong., 2d sess., p. 779.
[3] Hearings on H. R. 7863, House Committee on the Public Lands, 61st Cong., 2d sess., p. 36.
[4] Oil and Gas Journal, p. 8.
[5] Annual Report U. S. Attorney General, 1913, p. 60.
[6] Hearings on leasing of oil lands, House Committee on Public Lands, 65th Cong., 1st sess., p. 32.
[7] Hearings on oil leasing bills, House Committee on the Public Lands, 65th Cong., 2d sess., p. 779.

railroad virtually prohibited the drilling of any but defensive or offset wells, and these only to prevent the crude petroleum being drawn off by wells on the adjoining land. This prohibition to drill new wells lasted until the fall of 1919, when the suits against the Southern Pacific Co. were decided, the Government winning as to 6,000 acres and the Southern Pacific Co. winning as to some 160,000 acres.

In the withdrawal suits injunctions were secured in most cases against the drilling of new wells on the land involved. By 1917 over 13,000 acres of highly productive oil lands were involved in the withdrawal suits, most of which were under injunction against the drilling of new wells. From 1915 to 1920, inclusive, over 4,000 acres of producing oil lands in California were included in operating contracts with the Secretary of the Interior, under which further drilling was not allowed.

SHORTAGE IN SUPPLY.—There was an overproduction of crude petroleum in California from 1910 to 1915 and a shortage from 1916 to 1920. By overproduction is meant the production of more crude petroleum than is consumed for several consecutive years, and by shortage is meant the consumption of greater quantities than are produced for several consecutive years.

One of the reasons for the withdrawal of the oil lands in California was the overproduction of petroleum in that State in 1909. This overproduction continued through 1914. Part of the overproduction was caused by the rapid development on withdrawn lands in the effort to make discovery of crude petroleum and thus secure the right to a patent. But in 1915 a stop was put to the drilling of new wells on withdrawn lands through suits by the Attorney General and through the operating agreements by the Secretary of the Interior. Additional drilling of wells on a large area of patented land was also prevented, beginning in 1915, by suits against the Southern Pacific Co.

The reason the withdrawal of nearly all of the unpatented public oil lands in California did not prevent continued overproduction for several years after the withdrawal was made in 1909 was explained by a number of men appearing before the various congressional committees. Thomas A. O'Donnell, a prominent oil operator of California, in 1910, in answer to the question as to what had been the result of the oil-land withdrawal upon the oil business in California, stated:

> Surprising to say, it has not had a great deal of effect as yet. . . . [illegible] because perhaps 95 per cent of all work that is going on now was already started and they could not stop. They had the best of the fall and could not let go; but there is very little new work, in my judgment, being contemplated until this matter is settled.

The matter was settled by the enactment of the Pickett Act in June, 1910, protecting claimants who were in "diligent prosecution of work leading to discovery." This requirement of the Pickett law, of course, increased drilling upon the withdrawn lands, as all claimants had to drill "diligently" to protect their claims. That the development of the withdrawn lands continued for several years after this withdrawal is shown by a statement made in 1917 by J. D. Gillett, who was a representative of the oil operators of California.

(See p. 23.)

[illegible]

Frank H. Short, another representative of the California oil operators, stated in 1916 that over $18,000,000 had been spent in the development of the unpatented withdrawn lands in dispute.[3] As very little had been expended prior to the withdrawal, it will be seen that there must have been very extensive development during the six years following the first withdrawal.

That the stopping of drilling by means of suits on large areas of unpatented lands and patented Southern Pacific lands in 1915 was one of the causes of the shortage of petroleum in California from 1917 to 1920 has been indicated in statements made by a number of Government officials, oil operators, and others. Lieut. Commander J. O. Richardson, of the Navy Department, stated in 1916 that if the leasing bill then before Congress was passed, thus opening up the withdrawn land to development, it would result in an increased production in California and possibly in a reduced price, and that in any case it would result in the crude petroleum being sold for less than its intrinsic worth, as had been done for the last two or three years.[4]

The following is quoted from the Oil and Gas Journal issue of November 2, 1916 (p. 21):

> The interference with drilling activities brought on by this withdrawal system of the Government leaves many thousands of acres of territory still undecided as to its possibilities of maintaining a future supply of oil, for as far as the wells can be drilled located miles apart and reaching out in every direction are awaiting the outcome of legislation.

The same journal contained the following in its issue of February 3, 1917 (p. 25), in regard to the shortage in production during 1916:

> The action of the Government in withdrawing the public oil lands of the San Joaquin Valley is directly responsible for the difference between production and consumption in the past year. It is agreed by men who are familiar with the field that only for the check given active and anticipated developments—that is, had the holders of these claims been unhampered in drilling activities—there is no question of doubt but conditions for the past year would have been reversed, and at this time, instead of there being 14,000,000 barrels shortage, the surplus accumulated in the last few years would have been added to.

In July, 1917, the committee on petroleum of the California State Council of Defense published a very interesting and valuable report on the petroleum industry of California. In this report considerable space was devoted to the shortage of crude petroleum, the causes thereof, and the remedies therefor. The members of this committee were Max Thelen (chairman), Eliot Blackwelder, and D. M. Fullerton. The report of the committee intimated that the shortage was due to the litigation with the Government and stated that there was no adequate remedy for the shortage except the development of the lands in litigation.[5]

The report of the committee, after stating that during 1916 and the first five months of 1917 consumption outran production at the rate of about 35,000 barrels per day, added:[6]

> In order to derive an increase of 35,000 barrels per day in the production of California petroleum, drilling must be done on the land which will yield the largest production in the shortest time.

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[3] Hearings on leasing of oil lands, Senate Committee on Public Lands, 64th Cong., 1st sess., p. 354.
[4] Ibid., 64th Cong., 1st sess., p. 218.
[5] Report of Committee on Petroleum, California Council of Defense, pp. 24, 25.
[6] Ibid., pp. 126, 127-128.

Of the most desirable undrilled lands, approximately 70 per cent are involved in litigation with the Federal Government. Nearly one-half of the best undrilled proven petroleum lands are claimed by the Kern Trading & Oil Co., the fuel-oil interest of the Southern Pacific Co., under patents issued to the Southern Pacific Railroad Co.[5]

In another place the report of the committee stated:[6]

In our judgment, however, it is futile to expect an adequate increase from the lands which are at present free from suit, for it will be noted that the best of those lands have in general been more heavily drilled than any others, and at the same time they contain but a small part of the total acreage.

Again the committee stated in regard to the San Joaquin Valley oil lands then being withheld from development by Federal suits:[7]

It is our unqualified opinion that until these lands are in some way opened to rapid drilling, and for several months thereafter, a great increase in oil production can not be obtained from the valley fields.

The committee thought that production might be increased even if the naval reserves were maintained. Their report stated:[8]

We desire, however, to direct attention emphatically to the fact that a considerable portion of the proved productive territory hitherto undrilled is located outside of the naval reserves; that further development of some of this land has been stopped by litigation with the Federal Government; that the policy of the Federal Government which has resulted in the creation of naval reserves Nos. 1 and 2 can have no possible application to those lands which are not claimed or needed for the Navy, and that with the help of the Federal Government substantially increased production can be secured from these lands.

Bulletin 74 of the California State Mining Bureau, published in 1917, stated that the two prominent causes of the decline in production of petroleum were: (1) The tying up by Federal suits of the Midway-Sunset district that promised most from future development, and (2) the decline in the daily production per well in nearly all fields.

At a hearing before a congressional committee in 1917, Dr. Lyman Wilbur, president of Leland Stanford University, stated that when he was a member of the California State Council of Defense he asked the geological department of Leland Stanford University whether it was possible to increase the production of crude petroleum, and the answer was that the only possible immediate increase was by the development of well-proven oil territory in the State, which was in the naval reserves.[9]

M. L. Requa, then consulting engineer for the United States Bureau of Mines, stated at a hearing before a congressional committee in 1917:[10]

Due to the withdrawal of certain lands and the refusal of the Government to permit operations upon those lands, coupled with the normal decline of the fields, there came about an acute shortage, rendered more so by the increasing demand for oil. Stocks of oil have been steadily decreasing during 1916 and 1917.

A. C. Dieriex, president of the Honolulu Consolidated Oil Co., stated before a congressional committee in 1918 that his company had 4,800 acres of oil land in litigation, which had comparatively few wells, and that if they were allowed to lease their full claim they

[5] All of the lands patented to the Southern Pacific Co. under the railroad grants were involved in the litigation.

[6] Report of Committee on Petroleum, California Council of Defense, 1917, p. 142.

[7] Report Committee on Petroleum, California Council of Defense, 1917, p. 138.

[8] Ibid., 1917, pp. 136-137.

[9] Hearings on leasing of oil lands, Senate Committee on Public Lands, 65th Cong., 1st sess., p. 76.

[10] Ibid., p. 72.

would start an intensive drilling campaign and increase production at the rate of about 3,500,000 barrels a year, which would take care of one-third of the California shortage.[2]

At the same hearing A. C. McLaughlin, superintendent of operations of the fuel department of the Southern Pacific Co., stated that the Southern Pacific Co. was using 1,450,000 barrels of fuel oil per month, of which they produced 800,000 barrels from their own land, which was in litigation, and purchased 650,000 barrels from other companies. Mr. McLaughlin said that in April, 1917, the Southern Pacific Co. applied to the district court having jurisdiction of the cases against the company for permission to drill intensively on the litigated property in naval reserve No. 2, which would make up their deficit, but the court refused to permit this, as the Government desired to hold these lands as a permanent reserve.[3]

In March, 1920, K. R. Kingsbury, president of the Standard Oil Co. (California), in a letter to the Railroad Commission of California made the following statement in regard to the continued shortage of petroleum in California:[4]

> It is a matter of regret that the great area of productive lands, which has been held in litigation for so many years in the Midway field, was not opened to development and subjected to intensive operation.
>
> * * * The fact remains that a large body of productive land was allowed to remain idle and to suffer a great natural deterioration during a time of great necessity for oil, a policy largely responsible for the present shortage of fuel oil and the refined products of petroleum.

The withdrawals of oil lands and the shortage of crude petroleum production stimulated drilling operations outside of the withdrawn areas. As a result three new oil pools were discovered from 1917 to 1920, viz, the Montebello, Elk Hills, and Huntington Beach pools. The discovery well in the Montebello pool began producing in March, 1917, and at the end of 1919 this pool had produced more than 12,000,000 barrels. The Elk Hills pool and the Huntington Beach pool were brought in during 1920. The Elk Hills pool was producing more than 37,000 barrels per day in December, 1920, while the output of the Huntington Beach pool was 7,000 barrels per day early in 1921. All three of these pools were discovered by the Standard Oil Co. (California), and according to the Standard Oil Bulletin of February, 1921, neither of these last-named pools was "considered as having oil possibilities."

Summing up the effect of the withdrawals of oil lands upon the supply of petroleum in California and the probable effect of the enactment of the mineral land leasing law it may be stated:

(1) The withdrawals had only a slight effect in checking the development of oil lands in California for the first five years, as there continued to be an overproduction of crude petroleum in that State from 1910 to June, 1915. The withdrawal, therefore, did not adversely affect the California oil industry during that period, but was rather a means of preventing a greater overproduction than would have been the case had there been no withdrawal and lessened the waste due to storage to some extent.

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[2] Hearings on oil leasing lands, House Committee on the Public Lands, 66th Cong., 2d sess., pp. 707-708.
[3] Ibid., pp. 707-708.
[4] Standard Oil Bulletin, April, 1920, p. 2.

(2) The withdrawals, while not the only reason for the shortage of crude petroleum in California, did undoubtedly have considerable effect in lessening possible production during the period June, 1915, to 1920, inclusive. However, if there had been no withdrawals of oil lands in California there might have been a shortage anyway, because if the lands had been left open to mineral filings in 1909 they might have been pretty well drilled up during the period 1909–1915.

(3) The withdrawal of oil lands and the shortage of crude petroleum production stimulated drilling operations outside of the withdrawn lands, which led to the discovery of three new oil pools that were largely responsible for the record production of 1920.

(4) The enactment of the mineral land leasing law in February, 1920, and the final settlement of the Southern Pacific suits in the fall of 1919 are expected to lead to an increase in the annual production of crude petroleum in California, if there is no diminution in demand.

CHAPTER V.

ORGANIZATION, INVESTMENT, AND EARNINGS OF LARGE COMPANIES.

Section 1. Importance of large companies.

The Senate resolution directing this investigation named three large companies for which information covering their activities in all branches of the petroleum industry was to be made the subject of special inquiry, and this investigation has developed the fact that five large interests occupy a dominating position in the petroleum business of the Pacific coast. These five interests are highly integrated and are engaged in all branches of the oil industry, viz, producing, transporting, refining, and marketing; and their operations represent a very large proportion of the total volume of business in each branch of the oil business. These five interests in the order of the importance of their investment in all branches of the oil business of the Pacific coast in 1919 are as follows:

Standard Oil Co. (California).
Union Oil Co. of California.
Associated Oil Co.
Shell Co. of California.
General Petroleum Corporation.

In 1919 these interests produced over 53 per cent of the total gross production of the State, transported 90 per cent, and refined about 91 per cent of the total runs made by all the refineries in California.

In addition to these interests, the Doheny interests, which include eight producing companies, the Southern Pacific Co., which owns a majority of the stock of the Associated Oil Co., has been combined with it in the discussion of production; and the Atchison, Topeka & Santa Fe Railway Co., which controls two producing companies, are important factors in the ownership of oil lands and in the production of crude petroleum in California. The production of these seven interests in 1919 equaled almost 71.5 per cent of the gross production of the State.

Section 2. Standard Oil Co. (California).

ORGANIZATION AND DEVELOPMENT.—The Standard Oil Co. (California), which prior to the dissolution decree of the United States Supreme Court in 1911 was controlled by the Standard Oil Co. (New Jersey), was organized in September, 1906, as a consolidation of two concerns, the Standard Oil Co. (Iowa) and the Pacific Coast Oil Co.[1] The Pacific Coast Oil Co. commenced business in 1879 with a capital stock of $1,000,000. It was one of the pioneers of the industry that was engaged both in the production and refining of crude petroleum in California. In 1900 the Standard Oil Co. (New Jersey) purchased the entire stock of the company, but it continued to operate under the name of the Pacific Coast Oil Co. until 1906.

[1] Report of the Commissioner of Corporations on the Petroleum Industry, Pt. I, p. 66.

The authorized and issued capital stock of the Standard Oil Co. (California) at the time of its organization was limited to $17,000,000. Common stock, through successive increases of its authorized capital stock had grown by 1919 to $100,000,000, of which $99,373,310 was recorded as outstanding on December 31, 1919. As compared with 1906, the outstanding capital stock of the company at the end of 1919 had increased by $82,373,310, of which $49,686,655 represents stock dividends issued in equal amounts in 1916 and 1917. The balance, amounting to $32,686,655 according to a statement furnished by the company, was subscribed in cash.

The Standard Oil Co. (California) has integrated in its organization all branches of the oil business from the production of crude oil to the distribution of the various refined petroleum products to the retailer and consumer. The different branches of the oil business are carried on by the company through specifically organized departments, without resorting to the instrumentality of forming or acquiring separate companies. A minor departure from this course was followed when the Standard Oil Co. (California) organized in 1917 the Richmond Petroleum Co. for the purpose of carrying on prospecting and wildcatting. In this respect there is a marked difference between the Standard Oil Co. (California) and the other large oil companies of California, all of which have to a varying degree followed the policy of expansion through corporate stockholdings.

PRODUCTION OF CRUDE PETROLEUM.—The Standard Oil Co. (California) has at the present time a larger crude-oil production than any other company in California. The growth in production of this company has been very rapid. In 1904 the Pacific Coast Oil Co. had producing properties valued at $271,200, from which it produced 120,000 barrels of crude oil, and, as already stated, the Standard Oil Co. (California) took over this property in 1906. By the end of 1919 the latter company's producing property had a book value of $112,080,185.17, and the year's production was 25,484,984 barrels, which represented over 25 per cent of the State's total of 101,221,784 barrels. In 1919 the company owned or leased 96,413 acres of oil land, of which 10,148 acres were proven area. During the same year 1,011 wells were operated.

The Standard Oil Co. (California) has been one of the leading companies in the development of new oil fields and in so-called wildcat operations. Among the important oil pools that it has discovered are the Montebello, Elk Hills, and Huntington Beach pools. In 1919 it drilled 108 new wells, of which 90 proved to be producing wells and 18 dry holes. The company's report for 1918 shows that while it produces oil in practically all of the oil fields of the State, 60 per cent of its production comes from the Whittier-Fullerton field, 25 per cent from the Midway-Sunset field, 6 per cent from the Coalinga field, and smaller percentages from Kern River, Lost Hills-Belridge, and the Ventura-Newhall fields, while its production from the Santa Maria field is almost negligible.

TRANSPORTATION FACILITIES.—The Standard Oil Co. (California) makes use of pipe lines, tank cars, and tank steamers to transport crude oil, while in the distribution of refined products, tank steamers, tank cars, and motor vehicles are employed. This company has very extensive investments in its transportation facilities and is the

most important factor in this branch of the petroleum industry of California.

The pipe-line system of the Standard Oil Co. (California) had its genesis in short lines constructed by the Pacific Coast Oil Co. in Ventura County, notably one from Pico Canyon to the refinery at Newhall, which lines were built in the early eighties; in 1902-3, shortly after the Standard Oil interests acquired control of this company, the large production developed in the Kern River field and its geographical isolation prompted the construction of an 8-inch pipe line, 280 miles in length, from this field to its refinery at Richmond on San Francisco Bay, and a branch line was laid to the Coalinga field. The pipe-line investment of this company amounted to $6,212,696 in 1904. Short lines were built in Ventura County which were extended to the coast. Later the San Joaquin Valley line to the Richmond refinery was doubled, and in 1907 extensions were laid to the Midway-Sunset field and to the Lost Hills-Belridge field in 1910. The following year a pipe line was built from the Whittier-Fullerton field to the new refinery at El Segundo. On December 31, 1919, there were 913 miles of trunk lines operated by this company with a daily capacity of 122,000 barrels and 323 miles of gathering lines, which represented an investment of $15,815,385.05.

In addition to its large investment in pipe lines the Standard Oil Co. (California) used about 1,500 tank cars, with a capacity of from 200 to 300 barrels per car. Tank steamers are also utilized for the transportation of both crude and refined products. Some of these steamers transport the crude in the coastwise trade, others are used for shipments to our insular possessions and to foreign countries. The company had 13 tank steamers with an aggregate capacity of 584,000 barrels. The investment in tank steamers, barges, launches, and other property used for transportation by water was $7,077,940.88 December 31, 1919.

The marketing department of this company delivers a large part of its refined petroleum products directly to the consumer through service stations. During 1919, in the distribution of the refined products to the domestic trade, 2,091 motor and horse-drawn vehicles were used, while the producing, refining, and other departments required 293 motor vehicles.

PETROLEUM REFINERIES.—The Pacific Coast Oil Co. erected a refinery at Alameda, Calif., in the early eighties, but in 1901 this plant was removed to Richmond, also on San Francisco Bay. The capacity of this plant in 1901 was 10,000 barrels of crude oil per day; since that time successive additions have increased its capacity to 60,000 barrels per day. This plant is a thoroughly modern one and was equipped with a battery of 10 Burton Process pressure stills in 1917. In 1911 the Standard Oil Co. (California) erected another refinery at El Segundo, on the coast in the vicinity of Los Angeles, to refine its large production from the Whittier-Fullerton field, which was becoming commercially important at that time. The estimated daily capacity is 25,500 barrels. The plant is located on the seashore, but owing to the absence of proper wharfage facilities at that point, marine shipments are made from San Pedro, on Los Angeles Harbor. This harbor is connected with the refinery by a triple pipe line. In 1912 a refining plant was erected at Bakersfield, Calif., in the Kern River field, with a daily capacity of 20,000 barrels. This

gives the company a daily refining capacity of 115,500 barrels, which represented a gross refinery investment of $30,594,907.07 on December 31, 1919.

This company follows the general rule of running all crude oil produced or purchased through one of the refineries before any part of it is classified and sold as residuum or fuel oil.

MARKETING EQUIPMENT.—The Standard Oil Co. (California) sells its products in the marketing area formerly assigned to the Standard Oil Co. (Iowa), viz, California, Oregon, Washington, Arizona, Nevada, and a small part of Idaho, together with certain coastwise and overseas trade which can be cheaply and conveniently reached by tank steamers from California ports. The refined products and fuel oil are sold to retailers and consumers; over 50 per cent of the gasoline and 60 per cent of the kerosene is sold to retailers. The marketing facilities consists of 16 sales agencies, 385 substations, and 220 service stations. In 1919 the investment in marketing facilities and equipment amounted to $15,148,946.05.

TOTAL INVESTMENT.—The Standard Oil Co. (California) has a larger investment in the petroleum business of the Pacific coast than any other company or interest operating in that territory. The company's balance sheets for the period 1914–June 30, 1919, are shown in Appendix Table 13.

From other sources it has been ascertained that the Pacific Coast Oil Co. had a fixed investment of $9,045,450 in December, 1904, of which $2,119,550 was in the refinery, $271,210 in producing property, and $6,212,695 in pipe lines. The capital stock of the Standard Oil Co. (California) was increased from $49,687,000 in 1914 to $74,530,000 in 1916, with a further increase to $99,373,000 in 1917, while no additions were made during 1918 or 1919. The surplus in 1914 was $39,486,000; it was increased the following year to $43,201,000. Stock dividends amounting to $24,843,000 in 1916, and the same amount in 1917 was declared, and the surplus was $47,479,000 at the end of 1917. In 1918 the surplus declined slightly to $46,575,000, while on December 31, 1919, it had increased to $70,930,000.

The fixed investment including all departments of the business was $74,777,000 in 1914. During 1915 the fixed investment increased slightly to $78,565,000. During the subsequent years there was a continuous and rapid expansion of the fixed investment from $88,408,000 in 1916 to $182,142,000 at the end of 1919. This increase for the period 1917–1919 included certain appreciations which amounted to $62,385,000 at the end of 1919. All of this appreciation was in the valuation of the producing property.

FIXED INVESTMENT BY DEPARTMENTS.—The details of the expansion in the fixed investment are shown in Appendix Table 14 for the period 1914–June 30, 1919. The fixed investment reported by the company for December 31, 1919, included $30,584,000 in refining, $15,148,000 in marketing, $112,060,000 in producing, $15,815,000 in pipe lines, $7,077,000 in marine equipment and some sundry properties. As already stated, the valuation of the producing property includes an appreciation of $62,385,000, which is claimed under the regulations of the Internal Revenue Bureau and is termed the discovery value of the producing properties.

EARNINGS IN ENTIRE BUSINESS.—The Senate resolution calls for a report on the profits of the Standard Oil Co. (California) and certain

other large interests. The earnings obtained from all operations of this company from 1914 to June 30, 1919, as shown by the company's records, are given in Table 21, while a more detailed statement is presented in Appendix Table 15.

TABLE 21.—*Income account of the Standard Oil Co. (California), as shown by the company's records, 1914–June 30, 1919.*

Items.	1914.	1915.	1916.	1917.	1918.	1919.[1]
Gross sales of oil	$29,623,459.57	$37,625,104.26	$35,454,454.62	$50,623,243.34	$72,623,243.34	$31,625,032.73
Oil burned	1,667,238.11	2,067,275.14	2,267,125.41	2,267,453.67	4,625,114.45	2,079,126.61
Total sales	29,623,259.61	35,558,737.05	37,720,709.25	48,355,861.67	100,429,998.89	43,165,213.49
Profits:						
Oil sold	2,625,051.11	2,625,625.91	1,575,675.40	2,761,645.22	15,625,710.60	5,225,362.62
Casoline	3,760,644.20	4,762,423.25	5,625,125.60	6,625,267.25	14,625,225.91	6,127,625.70
Pipe lines	2,625,749.20	3,625,625.62	4,625,312.20	20,625,225.67	2,625,125.27	1,225,252.62
Marine operations	262,725.45	1,174,224.62	625,625.60	454,627.25	1,625,225.62	625,725.62
Other	262,625.17	262,562.60	1,262,625.50	1,165,227.62	1,512,125.62	1,262,225.62
Total profits	9,535,515.23	8,750,625.51	16,617,725.47	22,225,173.65	46,147,275.25	17,625,625.45

[1] First 6 months.

This company has no extensive holdings in subsidiary companies, and, as shown by the balance sheets, the investment in Government bonds constitutes the only outside investment which yields an income. The income from such sources is shown under "Interest and exchange" and is comparatively small.

RATE OF EARNINGS IN ENTIRE BUSINESS.—The rate of earnings on the entire investment—that is, capital stock, surplus and reserves, etc., combined—is shown in the following table.

TABLE 22.—*Rate of earnings of the Standard Oil Co. (California) in entire business, as shown by the company's records, 1914–June 30, 1919.*

Year.	Net investment.	Earnings.	Annual rate of earnings.
			Per cent.
1914	$96,625,225.51	$9,225,515.23	10.4
1915	97,271,775.64	8,750,625.51	9.4
1916	97,725,225.69	16,617,725.47	16.4
1917	127,627,225.25	22,225,173.65	16.4
1918	135,297,225.25	46,147,275.25	32.2
1919	145,425,627.75	[1] 17,625,625.45	24.2

[1] First 6 months.

This rate of earnings in 1914 has been computed on the net investment at the end of the year. For the succeeding years the rate of earnings is shown on the mean investment, which is obtained by taking one-half of the sum of the net investment at the beginning and end of the year. Thus determined, the rate of earnings, including all the activities of the company, varied from 10.4 per cent in 1914 to 21.6 per cent for the first six months, 1919, with an average rate of earnings of 17 per cent for the entire period.

INVESTMENT IN PETROLEUM BUSINESS.—The investment as shown by the balance sheets of the company includes certain outside invest-

ments which must be excluded in order to determine the investment in its oil business. Appendix Table 16 shows the net investment and the revised investment of the Standard Oil Co. (California) in the oil business only for the period 1914–June 30, 1919.

The company's total investment includes all capital items shown in the balance sheet, and from this amount such items as stocks and bonds of affiliated and other companies, which represent interest bearing securities and are not a part of the company's investment in its own operations, have been deducted in order to determine the company's net investment in the oil business. In the revised investment deferred charges and appreciation as shown by the company's records have been deducted, while certain adjustments in the depreciation and depletion charged on producing and refining properties have been made by the Commission in order to standardize the rates (see p. 119) for all companies. In addition, such items as incidental drilling, and geological and field research expenses have been regarded as additions to investment rather than deductions from income.

EARNINGS IN PETROLEUM BUSINESS.—The earnings and rate of earnings have been shown for the entire business of the company, and in order to determine the earnings from the company's operations in the oil business it is necessary to eliminate income from other sources, which includes such items as interest, dividends, and other outside earnings. The company's income from the oil business, as shown by its records, together with the income as revised by the Commission, is shown in Appendix Table 17. The items excluded are all plainly income from outside sources and not from the petroleum business.

RATE OF EARNINGS IN PETROLEUM BUSINESS.—The rate of earnings of the Standard Oil Co. (California) in the petroleum business for the period 1914–June 30, 1919, as shown by the company's records, is given in the following table:

TABLE 23.—*Rate of earnings of the Standard Oil Co. (California) in petroleum business, as shown by the company's records, 1914–June 30, 1919.*

Year.	Net investment.	Earnings.	Annual rate of earnings.
			Per cent.
1914	$91,225,823.01	$9,525,514.22	10.4
1915	92,182,065.98	8,709,498.81	9.4
1916	97,937,230.57	16,017,730.67	16.4
1917	126,934,695.89	23,635,730.80	18.6
1918	153,971,342.89	35,720,972.63	23.4
1919	167,205,710.20	[1] 17,700,533.23	[1] 22.5

[1] First 6 months.

The rate of earnings has been computed on the mean investment, excepting in 1914. The mean investment in the oil business has been determined by taking one-half of the sum of the investment at the beginning and end of the year; the net investment for 1914 is that shown for the end of the year.

The rate of earnings in the oil business increased from 10.4 per cent in 1914 to 22.5 per cent for the first 6 months, 1919. The year 1915 shows the lowest rate of earnings for the entire period, 9.4 per cent,

while the highest rate is 23.4 per cent in 1918. The average rate of earnings for the entire period in the oil business was 17.4 per cent.

REVISED RATE OF EARNINGS IN PETROLEUM BUSINESS.—The Commission has made certain adjustments in the company's charges for depreciation and depletion in the presentation of the costs of producing and refining crude petroleum, and in computing the cost of producing crude petroleum other items such as charges for abandoned property and incidental drilling have been capitalized and added back to income. The revised rate of earnings as thus determined by the Commission is shown in the following table:

TABLE 24.—*Rate of earnings of the Standard Oil Co. (California) in petroleum business, as revised by the Commission, 1914–June 30, 1919.*

Year.	Net investment.	Earnings.	Annual rate of earnings.
			Per cent.
1914	$95,000,000.00	$10,000,000.01	12.2
1915	[illegible]	[illegible]	[illegible]
1916	[illegible]	[illegible]	[illegible]
1917	[illegible]	[illegible]	[illegible]
1918	[illegible]	[illegible]	[illegible]
1919	[illegible]	[illegible]	[illegible]

[illegible] months.

The mean investment has been obtained as shown before, while the earnings are presented in Appendix Table 17. The rate of earnings as shown by the Commission's revision is 12.2 per cent for 1914 and 30.8 per cent for the first six months, 1919, while the average for the entire period was 22.4 per cent. The lowest rate of earnings, 10.7 per cent, is shown for 1915, and the highest, 34.1 per cent, in 1918.

Section 3. Union Oil Co. of California.

ORGANIZATION AND DEVELOPMENT.—The Union Oil Co. of California was organized in October, 1890, with an authorized capital stock of $5,000,000, for the purpose of acquiring the properties of the Mission Transfer Co. and the Hardison & Stewart Oil Co. The latter two organizations came into existence in the early eighties and were among the pioneer producers of crude petroleum in the Ventura-Newhall field and the Pico Canyon district.

The Union Oil Co. of California has the second largest investment in the petroleum business of the Pacific coast and has grown to its present position not only through the expansion of the primary company but through the medium of acquiring control of separate companies that were engaged in the various branches of the petroleum industry. These subsidiary companies are geographically distributed so that the parent company has production in every important oil field in the State of California. According to the data on hand, the Union Oil Co., on December 31, 1919, had corporate holdings in the following companies which are engaged in the petroleum business:

California Coast Oil Co.
Casmalia Ranch Oil & Development Co.
Claremont Oil Co.
John Irwin Oil Co.

Lakeview Oil Co.
Los Angeles Oil Co.
National Products Co.
Syndicate Oil Co.

In addition to the above companies, which are directly identified with the petroleum industry of California, this company controls the following other companies:

California Domestic Water Co.
La Habra Water Co.
Ship Owners & Merchants Tugboat Co.
Southwestern Ore Co.
Outer Harbor Dock & Wharf Co.
Union Tool Co.

Special note is to be taken of the ownership exercised by the Union Oil Co. of California in the Producers Transportation Co. This company was organized in 1909 with a capital stock of $7,000,000 for the purpose of constructing a pipe line from the San Joaquin Valley to the coast at Port San Luis. At that time there were two pipe lines in that valley owned by the Standard Oil Co. (California) and the Associated Oil Co., respectively. The Producers Transportation Co. was organized through the combined efforts of the Union Oil Co. and the Independent Oil Producers' Agency, the latter being an organization that was formed in 1904 by many small producers, all of whom operated at that time in the San Joaquin Valley. The particular nature of this organization is discussed in Part II.

Up to June, 1917, the Union Oil Co. owned 71 per cent of the total outstanding stock of the Producers Transportation Co., and at that time submitted an offer to the minority stockholders to exchange their shares for stock of the Union Oil Co. on a share-for-share basis. This offer was accepted and the Union Oil Co. has thus come into sole ownership of the Producers Transportation Co.

The community of interests between the Union Oil Co. of California and the Independent Oil Producers' Agency has not been limited to their joint ownership of the Producers Transportation Co., for in 1910 an agreement was entered into whereby the entire output of the members of the Independent Oil Producers' Agency was to be disposed of to the Union Oil Co. for a period of 10 years. This contract still exists with minor modifications.

Through successive increases the authorized capital stock of the company had grown by 1907 to $50,000,000, of which only $7,897,400 was outstanding in that year. But stock continued to be issued every year, and at the end of 1919 the company reported to have outstanding $46,341,800, of which $19,745,993 was issued some time ago as stock dividend following an appraisal of the company's property.

An interesting feature in connection with the stock distribution of the Union Oil Co. of California is the fact that the Union Oil Co. (Delaware) had acquired 180,960 shares out of a total of 300,000 outstanding up to December, 1920. The Union Co. (Delaware) was organized on August 15, 1919, with a capital stock of 5,000,000 shares of no par value. This company is interested in the production and refining of oil through the ownership of a considerable number of companies in various oil fields of the country. In California its holdings include, besides the 26.2 per cent stock ownership in the Union

Oil Co. of California, the entire ownership of the Columbia Oil Producing Co. of California and of the Western Union Oil Co. The Columbia Oil Producing Co. has been credited with an annual gross production varying from 903,283 barrels in 1914 to 1,090,346 barrels in 1918.

PRODUCTION OF CRUDE PETROLEUM.—The Union Oil Co. acquired producing property in the Ventura-Newhall field from its predecessors and has always maintained an active interest in productive work. In 1904 it was operating in the Whittier-Fullerton, Santa Maria, and Coalinga fields, as well as extending its operations in the original Ventura-Newhall region. The cooperation with the Independent Oil Producers' Agency prevented any development of its own in the Kern River or McKittrick fields. In 1910 the Lakeview No. 1 gusher was drilled in the Midway-Sunset field by this company and Lakeview No. 2 was brought in during 1914.

At the present time this company either directly or through cooperation with other companies is operating in all of the oil fields of California and is a very active "wildcatter." In 1919 the Union Oil Co. and subsidiaries owned or leased 286,417 acres of land, of which 12,512 acres are proven territory on which they operated 529 wells in December, 1919. Thirty-six wells and thirteen dry holes were drilled in 1919, while the total production for the same year was 8,705,447 barrels. The activities of this company in production have recently been extended to Wyoming, Texas, and Mexico.

TRANSPORTATION FACILITIES.—A pipe line which had been operated by the Mission Transfer Co. in Ventura County was obtained when this company was organized; this line was later extended through the Santa Clara Valley to the coast at Ventura. Pipe lines were also constructed throughout the Whittier-Fullerton fields, and were connected with the Los Angeles field and extended to the coast at San Pedro. The construction of the pipe line from San Joaquin Valley to the coast at Port San Luis in cooperation with the Independent Oil Producers' Agency was completed in 1910, while Lakeview No. 1 gusher was still flowing, and a pipe line was also laid which extended to Port San Luis from the Santa Maria field. These pipe lines reached all the fields in which the company was interested and formed a very efficient system for the transportation of crude petroleum.

In 1919 the trunk pipe lines owned or controlled by this company aggregated 421 miles, with a daily capacity of 95,000 barrels. Other transportation facilities include 18 tank steamers and barges, with a capacity of 528,000 barrels, besides chartered ships, tank cars, tank wagons, and motor vehicles.

PETROLEUM REFINERIES.—The original refinery of this company was located at Santa Paula in Ventura County, but in 1895 a new refinery was erected at Oleum on San Francisco Bay, which in 1920 had a daily capacity of 22,000 barrels. Other refineries operated by this company were built at Bakersfield (Maltha) in 1903, at Avila in 1910, at Fullerton (Brea) in 1911, at Santa Paula in 1912, and at Los Angeles in 1919. The combined daily capacity of all these plants is 64,800 barrels.

MARKETING EQUIPMENT.—This company is thoroughly integrated and has adopted the retail marketing system in the domestic market, and thereby eliminating wholesalers and brokers in the distribu-

tion of its petroleum products. Its domestic marketing territory includes the Pacific Coast States with Nevada and Arizona, in which it operates 22 service stations. The Union Oil Co. of California is engaged in trade with the insular or noncontiguous territories of Hawaii and Alaska. The company also has a considerable export trade, particularly to British Columbia, Panama, and Chile. In connection with its activities in Mexico, crude oil from that country is purchased to supply contracts for fuel oil made with customers in Panama and Chile.

TOTAL INVESTMENT.—The Union Oil Co. of California has the second largest investment of all the large interests operating in California. The balance sheets as submitted by the company show a rapid growth in the company's investment during the last few years. Appendix Table 18 gives the balance sheet for the period 1914–June 30, 1919.

The capital stock and outstanding bonds together aggregated $41,985,000 in 1914, $42,094,000 in 1915, and $42,703,000 in 1916. A marked increase occurred in 1917, when the amount was $51,193,000. This was followed by more moderate additions in 1918 and 1919, when the amounts were $54,898,000 and $56,886,000, respectively. The surplus in 1914 was $11,788,000; in 1915, $11,617,000. The improved conditions in the petroleum business during the following years is reflected in the company's surplus, which was $16,561,000 at the end of 1916, $21,237,000 December 31, 1917, while at the end of the following year it declined to $19,326,000 and then increased to $25,282,000 on December 31, 1919. The fixed investment in the plant and properties was $43,528,000 in 1914, $44,512,000 in 1915, and $46,015,000 in 1916. There was a marked increase in 1917, at which time the pipe line property of the Producers Transportation Co. was taken over, resulting in increasing the fixed investment to $63,919,000, while smaller increments were added in the following years, giving $70,513,000 and $73,191,000 in 1918 and 1919, respectively.

FIXED INVESTMENT BY DEPARTMENTS.—Appendix Table 19 gives the analysis of the fixed investment by departments and shows clearly the progress of the company.

The fixed investment in 1919 included refinery property valued at $7,198,000, marketing investment of $8,080,000, a valuation of $42,139,000 for producing property, which includes an appreciation item of $8,605,000, pipe-line investment of $10,634,000, and $5,138,000 in marine equipment.

EARNINGS IN ENTIRE BUSINESS.—The profits of the Union Oil Co. of California are especially mentioned as a subject of inquiry in the Senate resolution, in response to which this report is submitted. The company's earnings from all of its activities, as shown by its records, are given in Table 25, while a more detailed statement is shown in Appendix Table 20.

TABLE 25.—*Income account of the Union Oil Co. of California, as shown by the company's records, 1914–June 30, 1919.*

Items.	1914	1915	1916	1917	1918	1919[1]
Gross sales of oil	$10,085,671.00	$13,244,149.15	$27,757,365.57	$33,011,301.32	$44,448,083.14	$23,822,094,230.24
Profits:						
Refined products	1,040,438.75	605,249.24	1,631,807.20	2,039,805.80	1,680,492.93	2,202,865.57
Crude sold	722,623.05	625,717.87	2,479,770.59	4,267,264.17	4,771,533.65	3,055,510.24
Pipe lines	274,912.90	302,199.39	272,661.05	61,701.44	667,247.70	377,665.54
Marine operations	932,633.95	1,195,855.42	1,402,205.82	1,731,095.57	851,055.15	[2] 177,855.43
Other	4,243,855.00	192,606.41	1,136,698.47	[2] 887,358.41	[2] 1,811,138.71	314,138.82
Total profits	6,735,024.45	2,919,128.13	7,224,661.63	7,642,294.15	6,659,136.24	6,570,712.39

[1] First 6 months. [2] Loss.

The company revised its 1918 income account in 1920 by changing the amount of depletion charged in accordance with regulations of the Bureau of Internal Revenue. The revised income amounted to $5,635,076.40, which is $388,062.85 less than the income shown in the table.

RATE OF EARNINGS IN ENTIRE BUSINESS.—The rate of earnings in the entire business, as shown by the company's records before the revision was made for the period, is shown in the following table:

TABLE 26.—*Rate of earnings of Union Oil Co. of California in entire business, as shown by the company's records, 1914–June 30, 1919.*

Year.	Net investment.	Earnings.[1]	Annual rate of earnings.
			Per cent.
1914	$57,739,267.24	$2,735,024.45	4.7
1915	58,605,078.70	2,919,128.13	4.9
1916	58,964,316.13	7,224,661.63	12.3
1917	67,605,196.66	8,642,294.15	12.2
1918	74,260,223.03	7,573,136.24	10.2
1919	78,230,445.10	[2] 6,570,712.39	[2] 16.8

[1] Appendix Table 22. [2] First 6 months.

The net investment was determined by adding the capital stock, funded debt, and surplus. The rate of earnings for 1914 was computed on the net investment at the end of the year, while for subsequent years it was computed on the mean investment, which is obtained by taking one-half of the sum of the net investment at the beginning and end of the year. The rate of earnings, including all the activities of the company, varied from 4.7 per cent in 1914 to 14.6 per cent for the first six months of 1919, with an average rate of 9.9 per cent for the five and one-half year period. The years 1914 and 1915 show the lowest per cent of profit, while 1917 and the first half of 1919 were the most prosperous for this company.

INVESTMENT IN PETROLEUM BUSINESS.—The net investment as shown by the balance sheets of the company include certain items which must be excluded in order to show the investment in its oil business. Appendix Table 21 shows the investment of the Union Oil Co. of California in the oil business only for the period 1914–June 30,

1919. The company's total investment includes all capital items in the balance sheet, and from this amount such items as stocks, bonds, and notes in affiliated and other companies, which represent interest-bearing securities and are not a part of the company's investment in its own operations, are deducted in order to determine its net investment in the oil business. In the revised investment, deferred charges and appreciation, as shown by the company's records, have been deducted; also sundry adjustments have been made in depreciation and depletion in producing and refining properties made by the Commission (see p. 119) for all companies, while the item of incidental drilling has been capitalized instead of deducting it from income.

EARNINGS IN PETROLEUM BUSINESS.—The earnings and rate of earnings have been shown for the entire business of the company, and in order to determine the earnings from the company's operations in the oil business it is necessary to eliminate income from other sources, which includes such items as interest and dividends. The income from the oil business as shown by the company, together with the income as revised by the Commission, is shown in Appendix Table 22. The items excluded are all plainly income from outside sources and not from the petroleum business.

RATE OF EARNINGS IN PETROLEUM BUSINESS.—The company's rate of earnings in the petroleum business for the period 1914–June 30, 1919, is shown in the following table:

TABLE 27.—*Rate of earnings of the Union Oil Co. of California in petroleum business, as shown by the company's records, 1914–June 30, 1919.*

Year.	Net investment.	Earnings.	Annual rate of earnings.
			Per cent.
1914	$44,800,111.39	$2,128,288.04	4.8
1915	44,813,633.37	2,606,874.59	5.8
1916	47,437,915.44	6,190,027.42	13.0
1917	57,890,128.91	8,110,730.65	14.0
1918	67,620,095.35	7,878,686.93	11.7
1919	69,444,121.88	[1] 3,350,670.71	16.0

[1] First 6 months.

The rate of earnings in the oil business varied from 4.8 per cent in 1914 to 16 per cent for the first six months of 1919, with several fluctuations in the intervening years, while the average rate of earnings for the entire period in the oil business was only 10.9 per cent.

REVISED RATE OF EARNINGS IN PETROLEUM BUSINESS.—The Commission has made certain adjustments in the company's charges for depreciation and depletion, because it adopted uniform rates for these charges in order to obtain a comparative basis for all the large companies, and for a similar reason other items, such as charges for abandoned property and incidental drilling, have been added back to the income. The revised rate of earnings as thus determined by the Commission is shown in the table following.

TABLE 23.—*Rate of earnings of the Union Oil Co. of California in petroleum business, as revised by the Commission, 1914–June 30, 1919.*

Year.	Net investment.	Earnings.	Annual rate of earnings.
			Per cent.
1914	$95,402,811.25	$4,910,208.51	5.1
1915	35,088,365.69	2,500,188.78	7.0
1916	38,119,120.88	5,173,082.22	13.2
1917	46,499,782.66	7,668,783.20	16.5
1918	58,325,317.46	8,347,442.68	14.3
1919	60,739,417.25	16,305,673.82	21.0

[1] First 6 months.

The net investment was obtained as before, while the earnings are those shown in Appendix Table 22. The rate of earnings varied from 5.1 per cent in 1914 to 21 per cent for the first six months of 1919, with minor fluctuations in the intervening years, while the average rate of revised earnings for the entire period was 13.5 per cent.

Section 4. Associated Oil Co.

ORGANIZATION AND DEVELOPMENT.—The Associated Oil Co. was incorporated in California in October, 1901, with an authorized capital of $40,000,000, all in common stock. All of the voting power was held by 11 trustees under a pooling arrangement. The amount of the authorized stock had not been increased up to December 31, 1919, and on that date $39,765,085 in common stock was outstanding. In 1909 the Southern Pacific Co. acquired control of the Associated Oil Co. through the purchase of $20,069,000 of the capital stock, and the pooling agreement whereby the stock was voted by 11 trustees was dissolved.

The Associated Oil Co. was formed by the consolidation of many small producing companies operating in such parts of the Kern River and McKittrick oil fields as were not accessible to the railroads. At the time this company was formed these fields had a surplus production of crude oil and the problem of providing adequate pipe-line facilities connecting with a railroad or running directly to the centers of consumption was very acute. The combination effected by the smaller producers in forming the Associated Oil Co. was an attempt to provide the necessary financial means to successfully overcome the handicap of inadequate pipe-line facilities. The first noteworthy acquisition of the Associated Oil Co. was its purchase, in 1905, of the pipe line that ran from Coalinga field to Monterey on Monterey Bay. In 1907 the Associated Oil Co., together with the Southern Pacific Co., organized the Associated Pipe Line Co. In addition to its interest in this pipe line, the Associated Oil Co. is interested in a number of subsidiary companies engaged in the various branches of the petroleum industry by either owning the entire outstanding stock of those companies or by holding a majority ownership in them. Some of these companies carry on development work and some manufacture and deal in oil supplies; however, most of the companies carry on extensive operations in the production of crude petroleum.

The following companies are controlled by or affiliated with the Associated Oil Co.:

Amalgamated Oil Co.
Arcturus Oil Co.
Associated Oil Co. of Nevada.
California Coast Oil Co.
California-Utah Oil Co.
Casmalia Syndicate.
Coalinga Unity Oil Co.
Commercial Petroleum Co.
New Hope Oil Co.
Pantheon Oil Co.
Pioneer-Midway Oil Co.
Reward Oil Co.
Salt Lake Oil Co.
Sterling Oil & Development Co.
West Coast Oil Co.

All of the companies listed above are producing companies except the Associated Oil Co. of Nevada, which is engaged in marketing. In addition to the above, the Associated Oil Co. owns or controls the following water and supply companies:

Associated Supply Co.
Associated Water Co.
Bakersfield Iron Works.
Western Mineral Co.

PRODUCTION OF CRUDE PETROLEUM.—The original stockholders in this company, which included many of the largest and best known producers in the State, had their holdings in the Kern River, McKittrick, and other fields in the San Joaquin Valley division, where the production was so prolific during the opening years of this century. Other early acquisitions included producing properties in the Santa Maria field in the coastal division, while in the southern division production was obtained through acquisition of an interest in the Amalgamated Oil Co., which company controlled production in the Salt Lake field adjacent to Los Angeles and through the acquisition of the Salt Lake Oil Co., the Arcturus Oil Co., and the California-Utah Oil Co. The Amalgamated Oil Co. later extended its operations to the Whittier-Fullerton field, while the Associated Oil Co. at the same time entered the Ventura County-Newhall fields. Producing operations are now conducted by this company in all producing areas in the State. The total acreage controlled by the company is 91,763, of which 48,835 acres were classified as proven area in 1918. The Associated Oil Co. had 1,239 producing wells in 1919, of which 75 were drilled during that year.

TRANSPORTATION FACILITIES.—In 1904 a 6-inch pipe line had been built from Coalinga field to the coast at Monterey on Monterey Bay by the California Coast Oil Co. This pipe line was purchased by the Associated Oil Co. in 1905. In 1907, in conjunction with the Southern Pacific Co., the Associated Pipe Line Co. was organized with a capitalization of $7,000,000. It immediately began the construction of a pipe line from the Kern River field to San Francisco Bay. This was an 8-inch line and was completed in 1908; upon its completion another pipe line was built from the McKittrick field through Coalinga field to the same terminal. In the meantime a pipe line, terminating at

Gaviota, had been acquired in the Santa Maria field, while the Amalgamated Co. had a short pipe line connecting the Salt Lake field with the city of Los Angeles. The company also owns 12 tank steamers, barges, tugs, etc., capacity 296,000 barrels, for use in the coastwise trade and around harbors. Other transportation facilities include tank cars and tank wagons.

PETROLEUM REFINERIES.—The refining facilities of this company include the Los Angeles plant of the Amalgamated Co., built in 1904, the plant at Gaviota acquired in 1906, and the refinery constructed at Avon on San Francisco Bay. These plants have an aggregate daily capacity of 42,000 barrels.

MARKETING EQUIPMENT.—The primary purpose of the operations of this company was to produce heavy crude petroleum for use as fuel on the locomotives of the Southern Pacific Co. In conformity with this purpose, the Associated Oil Co. make many exchanges of light oil for heavy crude with the other producing companies and also purchased fuel oil in the open market. However, as a result of its refining operations, the refined products are available for distribution and it is necessary for the company to maintain marketing facilities to handle these products. Its domestic marketing territory includes California, Oregon, Washington, Nevada, and Arizona. Shipments are also made to Alaska and Hawaii, and the company is engaged in foreign trade with British Columbia, Panama, and Colombia.

TOTAL INVESTMENT.—The Associated Oil Co., as already stated, is engaged in all branches of the oil business and it ranks third in investment in the petroleum business of California. The company's balance sheets for the period 1914–June 30, 1919, are shown in Appendix Table 23.

The capital stock and funded debt aggregated $54,970,000 in 1914 and $50,346,000 in 1919, with minor fluctuations during the intervening years. This company did not declare any stock dividends. The surplus was $6,273,000 in 1914, declined to $5,962,000 in 1915, and beginning with 1916 shows a steady increase to $12,504,000 in 1919. The fixed investment in plant and properties was $55,999,000 in 1914, and increased steadily throughout the period 1915–1919 by small increments to $60,273,000 in 1919.

FIXED INVESTMENT BY DEPARTMENTS.—The net plant investment of the Associated Oil Co., as shown in Appendix Table 23, includes the investment in producing property and equipment, in pipe lines, refineries, marine transportation equipment, marketing equipment, and miscellaneous investment. The net plant investment for these different activities is shown in Appendix Table 24.

The fixed investment by departments in 1919 included $2,224,000 in refining, $1,487,000 in marketing, $32,249,000 in producing, $6,531,000 in pipe lines, $1,914,000 in marine equipment, and $44,000 in miscellaneous properties.

EARNINGS IN ENTIRE BUSINESS.—The Senate resolution did not specifically mention by name the Associated Oil Co. as one of the companies for which a report on profits should be secured; however, the resolution requests such information on "other companies," and the Associated has the third largest investment in the petroleum business of the entire State of California. The earnings obtained from all of the operations of this company, as shown by the company's records, are given in Table 29.

TABLE 29.—*Income account of the Associated Oil Co., as shown by the company's records, 1914–June 30, 1919.*

	1914	1915	1916	1917	1918	1919[1]
Gross sales of oil...	$12,372,309.71	$13,535,434.27	$17,722,498.70	$26,891,673.39	$27,267,119.73	$14,205,127.09
Profits:						
Refined products	[2] 775,608.37	[2] 973,260.15	[2] 1,709,267.85	[2] 1,210,985.65	1,788,235.79	1,040,933.88
Crude sold	[2] 477,819.04	[2] 268,287.61	[2] 1,206,790.41	[2] 5,607,672.87	5,101,889.63	[2] 490,735.78
Pipe lines	2,073,788.65	2,722,902.47	2,852,234.92	1,913,271.34	1,099,683.30	404,643.80
Marine operations	213,302.12	371,966.94	893,228.90	[2] 57,712.79	1,302,827.15	483,018.70
Other	212,570.90	108,773.28	112,443.45	[2] 297,934.73	[2] 2,785,962.98	[2] 301,291.83
Total profits	1,264,516.06	1,923,455.90	3,022,613.53	3,249,034.19	5,905,663.09	2,756,003.40

[1] First 6 months. [2] Loss.

The table shows a loss on the refined oil sold for the period 1914 to 1917, inclusive, while a profit is shown for 1918 and 1919. The crude petroleum transferred to the refineries is charged to the refineries at the market price plus transportation charges, and excepting the production department in 1914 and 1915, production, pipe lines, and the marine departments show profits. If these profits were deducted from the cost of sales a gain would be shown rather than a loss. The item "Other earnings" includes dividends and interest from affiliated companies and for recent years interest from Government bonds.

RATE OF EARNINGS IN ENTIRE BUSINESS.—The rate of earnings on the entire investment, that is, capital stock, bonds, and surplus combined, is shown in the following table:

TABLE 30.—*Rate of earnings of the Associated Oil Co. in entire business, as shown by the company's records, 1914–June 30, 1919.*

Year.	Net investment.	Earnings.[1]	Annual rate of earnings.
			Per cent.
1914	$61,343,833.70	$1,253,552.40	2.1
1915	60,147,085.44	1,920,919.28	3.2
1916	58,835,187.60	3,112,600.82	5.3
1917	59,165,427.60	4,021,452.24	6.8
1918	59,787,718.44	7,410,252.66	12.4
1919	60,825,909.94	[2] 7,085,722.87	11.7

[1] First 6 months. [2] Appendix Table 27.

This rate of earnings has been computed on the net investment at the end of the year in 1914, while for subsequent years the rate of earnings is shown on the mean investment, which is obtained by taking one-half of the sum of the net investment at the beginning and end of the year. Thus determined, the rate of earnings including all the activities of the company varied from 2.1 per cent in 1914 to 11.7 per cent for the first six months of 1919, with an average rate of earnings of 6.5 per cent for the entire period.

INVESTMENT IN PETROLEUM BUSINESS.—The investment, as shown by the balance sheets of the company, includes certain outside investments which must be excluded in order to determine the investment in its petroleum business only. Appendix Table 26 shows the net and revised investment of the Associated Oil Co. in the oil business

only for the period 1914–June 30, 1919. The company's total investment includes all capital items in the balance sheet, and from this amount such items as stocks and bonds in affiliated and other companies, which represent interest-bearing securities and are not a part of the company's investment in its own operations, are deducted in order to determine the company's net investment in the petroleum business. In the revised investment deferred charges and appreciation as shown by the company have been deducted, while certain adjustments in the depreciation and depletion charged on producing and refining properties have been made by the Commission in order to standardize such charges for all companies (see p. 119), while incidental drilling is regarded as an addition to investment rather than a deduction from income.

EARNINGS IN PETROLEUM BUSINESS.—The earnings and rate of earnings have been shown for the entire business of the company, and in order to determine the earnings from the company's operations in the petroleum business it is necessary to eliminate income from other sources, which includes such items as dividends and interest. The income from the petroleum business as shown by the company's records together with the income as revised by the Commission is shown in Appendix Table 27. The items excluded are all plainly income from outside sources and not from the petroleum business.

RATE OF EARNINGS IN PETROLEUM BUSINESS.—The rate of earnings from the petroleum business for the period 1914–June 30, 1919, is shown in the following table:

TABLE 31.—*Rate of earnings of the Associated Oil Co. in petroleum business, as shown by the company's records, 1914–June 30, 1919.*

Year.	Net investment.	Earnings.	Annual rate of earnings.
			Per cent.
1914	$33,379,535.40	$1,439,901.73	4.3
1915	35,280,224.43	2,274,218.09	6.5
1916	51,194,658.95	3,264,207.46	6.4
1917	60,965,180.69	4,496,286.08	7.4
1918	49,714,902.43	7,934,053.60	15.9
1919	49,533,612.73	[1] 3,833,663.67	[1] 15.5

[1] First 6 months.

The rate of earnings for 1914 is based on the net investment at the end of the year while for subsequent years it is based on the mean investment, which is obtained by taking one-half of the net investment at the beginning and end of the year.

The rate of earnings in the petroleum business only varied from 3.8 per cent in 1914 to 15.5 per cent for the first 6 months of 1919, with several fluctuations in the intervening years, while the average rate of earnings for the entire period in the petroleum business was only 8.3 per cent.

REVISED RATE OF EARNINGS IN PETROLEUM BUSINESS.—The Commission has made certain adjustments in the company's charges for depreciation and depletion because it adopted uniform rates for these charges in order to obtain a comparable basis for all the large companies, and for similar reasons, other items, such as incidental drilling, have been added back to the income and the investment.

The revised rate of earnings as thus determined by the Commission is shown in the following table:

TABLE 32.—*Rate of earnings of the Associated Oil Co. in petroleum business, as revised by the Commission, 1914–June 30, 1919.*

Year.	Net investment.	Earnings.	Annual rate of earnings.
			Per cent.
1914	$40,020,529.65	$1,367,498.00	3.5
1915	41,077,655.96	2,179,883.31	5.1
1916	42,311,207.67	3,467,621.35	8.2
1917	43,281,200.32	4,700,576.20	11.1
1918	42,616,917.15	5,349,691.93	12.4
1919	44,091,577.26	[1] 3,895,976.01	17.6

[1] First 6 months.

The revised rate of earnings varied from 3.5 per cent in 1914 to 17.6 per cent for the first six months, 1919, with minor fluctuations in the intervening years, while the average rate of revised earnings for the entire period was 10.2 per cent.

Section 5. General Petroleum Corporation.

ORGANIZATION AND DEVELOPMENT.—The predecessor of the General Petroleum Corporation was organized in March, 1910, in California under the name of the Esperanza Consolidated Oil Co., as a consolidation of the Esperanza Oil and Gas Co. and the Sybil Oil Co. In 1912 the name of the company was changed to General Petroleum Co., and in May, 1916, there was a reorganization and the present company was formed under the name of the General Petroleum Corporation.

The authorized capitalization of the General Petroleum Co. was $50,000,000, all in common stock, of which $36,068,700 was outstanding in May, 1916, when the company was reorganized as the General Petroleum Corporation. The total capital stock issued by the latter company at the date of its organization, both in common and preferred stock, amounted to $16,702,400. The issued stock has since been increased to $21,787,800, of which $17,241,331.25 is common stock.

The General Petroleum Corporation is interested in several companies engaged in the production of crude petroleum in California and it controls the General Pipe Line Co. through ownership of all of its stock. The General Pipe Line Co. was formed in 1912 with an authorized capitalization of $7,500,000, divided into two classes of stock, class A amounting to $2,000,000 and class B amounting to $5,500,000. The entire authorized capital stock was issued immediately upon the organization of the company, the class B stock being held for the General Petroleum Co. by the General Pipe Line Corporation of Maine, which was a holding company. The entire issue of class A stock was sold to outsiders. The General Petroleum Co. guaranteed the payment of 8 per cent on the class A stock, reserving to itself the option of buying it back at par within the next seven years. Later this option was exercised by the General Petroleum Corporation and it became the sole owner of all of the stock of the General Pipe Line Co., and the holding company was dissolved.

The General Petroleum Corporation is not as highly integrated as some of the other large oil companies which operate in California. It is directly engaged in producing and refining crude petroleum, and it produces and transports crude petroleum through its subsidiaries. Its marketing department does not distribute refined products directly to the consumer through service stations. Its marketing activities are confined to sales to large consumers and to the wholesale market.

PRODUCTION OF CRUDE PETROLEUM.—The predecessors of this company controlled producing property in the Midway-Sunset, Santa Maria, Lost Hills-Belridge, and Coalinga fields, and later developments included properties in the Whittier-Fullerton and Ventura County fields; thus the present operations extend to all of the important oil-producing fields in California, excepting the Kern River and McKittrick fields. In 1919 this company controlled 20,433 acres of oil land with 450 producing wells, which represented a book value of $19,969,020.31. The company has done a great deal of prospecting and wildcatting. In its wildcat operations it has drilled single wells costing $100,000, without finding any oil.

The General Petroleum Corporation is engaged in prospecting for crude petroleum in Wyoming and Texas and a subsidiary of this company has been operating in Mexico, where 24,500 acres of land are controlled.

TRANSPORTATION FACILITIES.—The General Petroleum Corporation does not own or operate pipe lines, but the General Pipe Line Co., which is entirely owned by the former company, owns and operates an 8-inch pipe line which runs south from the oil fields in the lower extremity of the San Joaquin Valley, crosses the Tehachapi range, reaches the refinery at Vernon and extends to San Pedro. This line has a branch from Lebec to Mojave on the line of the Santa Fe Railroad. The total length of this line is 212 miles. The section of this pipe line from the Midway-Sunset field to Mojave is utilized to a high percentage of its capacity, while the section from Lebec to Vernon (78 miles in length) was used very little during 1918 and 1919, as the oil for refining purposes at Vernon has been obtained from Montebello pool in the Whittier-Fullerton field.

Other transportation facilities which are owned by the General Petroleum Corporation include tugs, barges, tank cars, and motor vehicles.

PETROLEUM REFINERIES.—The refining operations include a plant at Vernon, adjacent to Los Angeles, and a topping plant at Olinda in the Whittier-Fullerton field. The distillates from the latter plant are transferred to the former to be rerun. The plant at Vernon has a capacity of 20,000 barrels per day, and it uses the Trumble process of distillation. Experiments have been made with a new process which the company calls "a synthetic process," by which it manufactures "synthetic" gasoline and mineral turpentine.

MARKETING EQUIPMENT.—In the marketing department the company does essentially a wholesale business. It does not own or operate service stations which sell to the retail trade or directly to the consumer. In the domestic market fuel oil is sold at wholesale in the Pacific Coast States and in Nevada and Arizona. Some fuel oil is also exported.

TOTAL INVESTMENT.—The General Petroleum Corporation ranks fourth in the amount of investment in the petroleum business of California. The company's balance sheets for the period 1916–June 30, 1919, are given in Appendix Table 28.

The capital stock and bonds of this company aggregated $17,605,000 in 1916, the first year of its operations; they were increased to $19,252,000 in 1917, followed by a slight decline in 1918 to $18,561,000, and then increased to $23,548,000 in 1919. The profit and loss surplus as distinguished from the capital surplus was $291,000 in 1916, it was increased to $2,396,000 in 1917, and to $4,373,000 in 1918, after which there was a decline to $4,011,000 in 1919.

The fixed investment in the plant and producing properties was $16,830,000 in 1916, the following year it increased to $20,783,000; in 1918 there was a comparatively small increase to $22,286,000, which was followed by a large increase in 1919 to $31,463,000.

FIXED INVESTMENT BY DEPARTMENTS.—The details of the expansion in the fixed investment is shown in the increase in the investment by the different branches of the industry. This investment in the different branches of the General Petroleum Corporation is shown in Appendix Table 29.

The fixed investment for the General Petroleum Corporation does not include the pipe-line investment, as the pipe lines belong to the General Pipe Line Co. However, as all of the stock of the latter company is owned by the former company, the fixed investment in pipe lines has been shown in the table in order to furnish a basis for a complete comparison with other companies.

The fixed investment December 31, 1919, was $19,969,000 in producing properties, $1,419,000 in refining, $1,074,000 in marketing facilities, $7,570,000 in pipe lines, $223,900 in marine equipment, and $1,205,000 in miscellaneous properties.

EARNINGS IN ENTIRE BUSINESS.—The General Petroleum Corporation is specifically mentioned in the Senate resolution directing this inquiry and a report on its earnings is part of the information requested. The earnings for the General Petroleum Corporation from all sources are shown in the following table, while a detailed statement is given in Appendix Table 30:

TABLE 33.—*Income account of the General Petroleum Corporation, as shown by the company's records, 1916–June 30, 1919.*

Item.	1916 [1]	1917	1918	1919 [2]
Gross sales of oil	$3,607,747.69	$13,520,017.52	$25,274,170.45	$9,070,716.9
Profits:				
Refined products	686,112.46	4,443,220.06	5,321,021.40	2,407,013.4
Marine operations	257,005.31	415,885.46	2,286,066.99	312,203.1
Other (net)	[3] 643,181.61	[3] 1,980,082.65	[3] 5,144,963.12	[3] 1,074,920.5
Total profits	300,936.96	2,985,023.88	3,985,792.29	1,644,295.8

[1] Last 6 months. [2] First 6 months. [3] Loss.

The income for 1916 represents the earnings for the last half of the year. The years 1917 and 1918 were by far the most profitable years for this company, while on June 30, 1919, the net income for the one-half year shows a slight decline.

RATE OF EARNINGS IN ENTIRE BUSINESS.—The rate of earnings on the entire investment, that is, capital stock, surplus, reserves and bonds combined, is shown in the following table:

TABLE 34.—*Rate of earnings of the General Petroleum Corporation in entire business, as shown by the company's records, 1916–June 30, 1919.*

Year.	Net investment.	Earnings.[1]	Annual rate of earnings.
			Per cent.
1916[2]	$21,473,511.03	$527,966.96	3.8
1917	20,704,044.06	3,903,021.33	13.5
1918	27,201,465.22	6,720,179.19	24.7
1919[3]	29,554,302.04	[4] 31,872.78	[4] .2

[1] Appendix Table 32. [2] Last 6 months. [3] Earnings for first 6 months. [4] Loss.

The earnings of the General Petroleum Corporation in 1916 represent six months' operation, while the rate has been computed on an annual basis. This rate of earnings has been computed on the net investment at the end of the year. For the succeeding years the rate of earnings is shown on the mean investment, which is obtained by taking one-half of the sum of the net investment at the beginning and end of the year. Thus determined, the rate of earnings, including all the activities of the company, varied from 3.8 per cent in 1916 to a loss of 0.2 per cent for the first 6 months, 1919, with an average rate of earnings of 13.2 per cent for the entire period.

INVESTMENT IN PETROLEUM BUSINESS.—The investment as shown by the balance sheets of the company includes certain outside investments which must be excluded in order to determine the investment in its petroleum business. Appendix Table 31 shows the net and revised investment of the General Petroleum Corporation in the petroleum business only for the period 1916–June 30, 1919.

The company's total investment includes all capital items in the balance sheet, and from this amount such items as stocks, bonds, and notes in affiliated and other companies, which represent interest-bearing securities and are not a part of the company's investment in its own operations, are deducted in order to determine the company's net investment in the petroleum business. In the revised investment deferred charges and appreciation as shown by the company have been deducted while certain adjustments in the depreciation and depletion charged on producing and refining properties have been made by the Commission in order to standardize such charges (see p. 119) for all companies, while incidental drilling, geological and field research, etc., are regarded as additions to investment rather than deductions from income.

EARNINGS IN PETROLEUM BUSINESS.—The earnings and rate of earnings have been shown for the entire business of the company, and in order to determine the earnings from the company's operations in the petroleum business it is necessary to eliminate income from other sources, which includes such items as interest and dividends. The income from the petroleum business, as shown by the company's records, together with the income, as revised by the Commission, is shown in Appendix Table 32. The items excluded are all plainly income from outside sources and not from the petroleum business.

RATE OF EARNINGS IN PETROLEUM BUSINESS.—The rate of ings in the petroleum business for the period 1916–June 30, 19 shown in the following table:

TABLE 35.—*Rate of earnings of the General Petroleum Corporation in petroleum ness, as shown by the company's records, 1916–June 30, 1919.*

Year.	Net investment.	Earnings.	A r on
1916	$17,970,116.23	[1] $206,315.95	
1917	19,924,193.74	3,007,880.77	
1918	22,873,096.84	6,724,733.62	
1919 [2]	24,361,993.74	[3] 57,963.75	

[1] Last 6 months. [2] Earnings for first 6 months. [3] Loss.

The investment for 1916 is for the end of the year, while tha other years is the mean investment, which is obtained by taking half of the sum of the investment at the beginning and end o year.

The rate of earnings in the petroleum business only varied 4.4 per cent in 1916 to a loss of 0.5 per cent for the first six mo 1919, with several fluctuations in the intervening years, while average rate of earnings for the entire period in the petro business only was 15.7 per cent.

REVISED RATE OF EARNINGS IN PETROLEUM BUSINESS.—The mission has made certain adjustments in the company's charge depreciation and depletion, because it adopted uniform rates these charges in order to obtain a comparative basis for all large companies, and for similar reasons other items, such as cha for abandoned property and incidental drilling have been added to the income and the investment. The revised rate of earnin thus determined by the Commission is shown in the following t

TABLE 36.—*Rate of earnings of the General Petroleum Corporation in petroleum ness, as revised by the Commission, 1916–June 30, 1919.*

Year.	Net investment.	Earnings.	A r on
1916	$14,149,419.87	[1] $325,194.48	
1917	16,618,606.13	3,777,314.86	
1918	20,115,627.04	7,615,606.94	
1919	22,027,625.69	[2] 1,629,202.66	

[1] Last 6 months. [2] First 6 months.

The revised rate of earnings varied from 7.3 per cent in 191 14.3 per cent for the first six months 1919, with minor fluctuatio the intervening years, while the average rate of revised earning the entire period was 24.5 per cent.

Section 6. Shell Co. of California.

ORGANIZATION AND DEVELOPMENT.—The Shell Co. of Californ a subsidiary of the Royal Dutch Petroleum Co. and of the Shell T

port & Trading Co., of The Hague and London. These parent companies are a combination of British and Dutch interests. The Royal Dutch-Shell interests control the Roxana Petroleum Corporation (of Oklahoma) and own the entire outstanding stock of the Shell Co. of California.

The Royal Dutch-Shell combination first became identified with the oil industry of California in 1913, when the Shell Transport & Trading Co., an organization which represents the English interests in the original combination, purchased the California Oilfields (Ltd.). The latter company was organized in 1901 and carried on extensive operations in the production of crude petroleum in the Coalinga field. The management of the properties thus acquired was assigned to the American Gasoline Co. (changed to Shell Co. of California (Inc.), in 1914), a company which was organized in 1912, in the State of New York, one year prior to the acquisition of the California Oilfields (Ltd.), by the Royal Dutch-Shell combination. The transportation facilities acquired from its predecessors were not adequate to handle the business of the new company, and in 1914 the Valley Pipe Line Co. was organized with an authorized capital stock of $10,000,000. In 1915 the Shell Co. of California (Inc.) was dissolved and the ownership and operation of the properties taken over by a California corporation under name of the Shell Co. of California. The Shell Co. of California held the entire outstanding stock of the Valley Pipe Line Co. up to January 1, 1918, at which time the latter company was dissolved and the property merged with the Shell Co. of California.

The authorized capital stock of the Shell Co. of California is $45,000,000, and there was outstanding on December 31, 1919, $33,535,575. The company reported that $16,223,700 of this stock was subscribed for in cash, the balance, $17,311,875, having been issued for property. As brought out above, the ownership of the stock of this company, as well as of the other companies that were absorbed by it, has always been concentrated in the hands of the Royal Dutch-Shell combination. It is therefore obvious that the property which is reported by the company as representing the equivalent for the issue of $17,311,875 worth of stock did not come into the ownership of the company from outside sources, but represents the value placed upon the property by the Royal Dutch-Shell interests in effecting the various reorganizations, as a result of which the Shell Co. of California acquired the ownership of the properties of the subsidiaries of the combination.

The Shell Co. of California, on December 31, 1919, owned the entire stock of the following subsidiaries:

Gold Shell Steamship Co.
New Orleans Refining Co.
Oilfields Cooperative Store.
Pearl Shell Steamship Co.
Silver Shell Steamship Co.
Washington Refining Co.

PRODUCTION OF CRUDE PETROLEUM.—The Shell Co. of California acquired the producing properties of the California Oilfields (Ltd.), which had been purchased by the Shell interests. The California Oilfields (Ltd.) began operating in the Coalinga field in 1901. The principal production of the Shell Co. of California still comes from

that field, while a very small proportion comes from a few wells in the Ventura County fields. At the close of 1919 the company controlled 9,474 acres of land of which 2,545 acres are proven property. On December 31, 1919, this company had 276 producing wells.

TRANSPORTATION FACILITIES.—The Shell Co. of California owned the capital stock of the Valley Pipe Line Co. On January 1, 1918, the Valley Pipe Line Co. was dissolved and its property merged with the Shell Co. of California. The Valley Pipe Line Co. constructed an 8-inch pipe line from the Coalinga field to San Francisco, a distance of 170 miles. This line was built during 1914 and 1915 and was first operated on August 1, 1915. It has a daily capacity of 30,000 barrels.

Other transportation facilities include tank steamers, controlled by this company, tank cars, tank wagons, and motor trucks. The Shell Co. maintains service stations from which it distributes petroleum products directly to the consumer.

PETROLEUM REFINERIES.—In the earlier years this company purchased its refined products from several small refineries in the vicinity of San Francisco. Later it built two refineries, one of which was completed in December, 1915, and the other in 1916. One of these refineries is located at Martines on San Francisco Bay and the other in the Coalinga field. The daily capacity of these plants is 30,000 and 2,000 barrels, respectively. The former plant is a complete refinery, producing such products as gasoline, kerosene, gas and fuel oil, and lubricating oils; while the Coalinga refinery is essentially a topping plant, although it does treat and finish the gasoline and kerosene distillates.

MARKETING EQUIPMENT.—In the domestic market this company distributes its products in all the Pacific States, also in Nevada and Arizona, while shipments to noncontiguous territory of the United States are made to Alaska and Hawaii, and export trade is carried on with British Columbia, Chile, and other countries. In its domestic territory the company maintains 77 service stations, distributed throughout California, Washington, and Oregon, which deliver the products directly to the consumer, while the company has an investment of about $200,000 in foreign ports consisting chiefly of tanks and other terminal facilities.

TOTAL INVESTMENT.—The financial status of the Shell Co. of California as disclosed by its balance sheets for the period 1915-June 30, 1919, is shown in Appendix Table 33.

The capital stock of the Shell Co. of California was $25,000,000 in 1915, while the amount was increased to $33,535,575 in 1916 and continued at that figure during 1917, 1918, and 1919. The earned surplus was $27,600 in 1915, $541,000 in 1916, and $747,000 in 1917, while the prosperous years of 1918 and 1919 showed a surplus of $3,484,000 and $5,437,000, respectively.

The fixed investment in plant and properties amounted to $21,391,000 in 1915 and $24,779,000 in 1916. Expansions of the company's business in 1917 caused a marked increase in the investment, which was $30,300,000 at the end of this year, while there was a further increase to $33,011,000 in 1918, and $35,280,000 in 1919.

FIXED INVESTMENT BY DEPARTMENTS.—The details of the company's fixed investment show the importance of the developments

in the different departments of the petroleum industry and the growth by departments from year to year. Appendix Table 34 shows the investment in the respective departments for the period 1915–1919. On December 31, 1919, the fixed investment included $4,547,000 in refining property, $2,028,000 in marketing property and equipment, $25,194,000 in oil lands and producing property, $3,299,000 in pipe lines, and $1,239,000 in miscellaneous investments.

EARNINGS IN ENTIRE BUSINESS.—The earnings as shown by the company, covering the activities in production, transportation, including both pipe line and marine, refining and for both foreign and domestic marketing activities, are given in the following table, and a more detailed statement is shown in Appendix Table 35.

TABLE 37.—*Earnings account of the Shell Co. of California, as shown by the company's records, 1915–June 30, 1919.*

Item.	1915	1916	1917	1918	1919 [1]
Gross value of sales	$	$	$	$	$
Profits:					
Refined products					
Crude oil	21,702.22	1,877.62	15,870.72		
Pipe line	27,604.35				
Marine operations	155,300.00	1,877.62	170,456.67		
Other (net)	27,082.47	64,611.61	72,218.19	6,337,187.97	14,767.89
Total profits	31,086.57	515,489.23	773,513.39	5,337,187.97	1,767,889.89

[1] First 6 months.

The earnings for 1915 were very small. In the year the principal activity of the company was in the marketing department. The year 1915 was one of low prices for petroleum products throughout the Pacific coast territory.

RATE OF EARNINGS IN ENTIRE BUSINESS.—The Shell Co. of California is not specifically mentioned in the Senate resolution as one of the companies for which a report is to be made concerning its profits, however, the evident intent of the resolution is to include it, as this company is extensively engaged in the various branches of the petroleum business. As this company was not organized until 1915, earnings can only be shown for the period 1915–June 30, 1919. The investment on which the rate of earnings has been computed includes the capital stock and surplus.

The following table shows the net investment, the earnings, and the rate of earnings for the Shell Co. of California for the period 1915–June 30, 1919:

TABLE 38.—*Rate of earnings of the Shell Co. of California in entire business, as shown by the company's records, 1915–June 30, 1919.*

Year.	Net investment.	Earnings [1]	Annual rate of earnings.
	$	$	Per cent.
1915	26,700,000.00	31,086.57	0.1
1916	26,771,000.00	515,489.23	1.9
1917	26,857,000.00	773,513.39	2.9
1918	26,957,000.00	5,337,187.97	19.8
1919	26,770,167.21	1,767,889.89	13.2

[1] Appendix Table 35. [2] First 6 months.

The rate of earnings for 1918 has been computed on the net investment at the end of the year. For subsequent years the rate of earnings is computed on the mean investment, which is obtained by taking one-half of the sum of the net investment at the beginning and end of the year. Thus determined, the rate of earnings, including all the activities of the company, varied from one-tenth of 1 per cent in 1918 to 7.3 per cent for the first six months, 1919, with an average rate of earnings of 4 per cent for the four and one-half year period. The year 1918 shows the highest rate of earnings, 8.4 per cent.

INVESTMENT IN PETROLEUM BUSINESS.—The investment as shown by the balance sheets of the company include certain outside investments such as Government bonds and stock in affiliated companies, which must be excluded in order to show the investment in its petroleum business.

Appendix Table 36 shows the net and revised investment of the Shell Co. of California in the petroleum business only for the period 1915–June 30, 1919.

The company's total investment includes capital stock and surplus in the balance sheet and from this amount such items as stocks, bonds, and notes in affiliated and other companies, which represent interest-bearing securities and are not a part of the company's investment in its own operations in the petroleum business, have been deducted in order to determine the company's net investment in the petroleum business. In the revised investment, deferred charges and appreciation, as shown by the company, have been deducted.

EARNINGS IN PETROLEUM BUSINESS.—The earnings and rate of earnings have been shown for the entire business of the company, and in order to determine the net earnings from the company's operations in the oil business it is necessary to eliminate income from other sources, which includes such items as interest and dividends, also the marine income owned by subsidiaries and royalty. The income from the oil business as shown by the company, together with the income as revised by the Commission, is shown in Appendix Table 37. The items excluded are all plainly income from outside sources and not from the petroleum business.

The items revised by the Commission are principally the charges for depreciation and depletion on the producing and refining properties which were adjusted for all companies (see p. 119), together with sundry items, such as geological and investigational expense, abandoned property, and patent depreciation.

RATE OF EARNINGS IN PETROLEUM BUSINESS.—The company's net investment and earnings in the petroleum business and the rate of earnings on investment for the period 1915–June 30, 1919, are shown n the following table:

TABLE 39.—*Rate of earnings of the Shell Co. of California in the petroleum business, as shown by the company's records, 1915–June 30, 1919.*

Year.	Net investment.	Earnings.	Annual rate of earnings.
			Per cent.
1915	$25,233,781.97	$27,781.33	0.1
1916	27,981,155.45	495,991.26	1.9
1917	35,902,761.48	173,214.92	.7
1918	38,167,573.36	3,415,988.24	8.4
1919	39,575,940.38	[1] 1,588,027.70	8.1

[1] First 6 months.

The investments shown are the mean investments for years 1916–June 30, 1919, and for 1915, the investment as at the end of the year. The rate of earnings in the petroleum business varied from one-tenth of 1 per cent in 1915 to 10.1 per cent for the first six months of 1919, with several fluctuations in the intervening years of the period, while the average rate of earnings for the entire period in the petroleum business only was 3.9 per cent. These earnings do not differ greatly from those shown for the entire business. (See Table 38.)

REVISED RATE OF EARNINGS IN PETROLEUM BUSINESS.—The Commission has made certain adjustments in the company's charges for depreciation and depletion because it adopted uniform rates for these charges in order to obtain a comparative basis for all these large companies; and for a similar reason other items, such as geological and investigational expense, together with abandoned property and patent depreciation, have been added back to the income. The ratio of earnings on the revised net investment and revised earnings as thus determined by the Commission is shown in the following table:

TABLE 40.—*Rate of earnings of the Shell Co. of California in petroleum business, as revised by the Commission, 1915–June 30, 1919.*

Year	Net investment.	Earnings.	Annual rate of earnings.
			Per cent.
1915	$22,239,991.26	1 $708,253.97	1 3.2
1916	25,155,241.77	1,366,677.80	5.4
1917	28,622,464.16	3,111,218.20	10.1
1918	34,066,220.13	6,627,042.89	19.5
1919	31,112,624.64	2 2,408,764.77	15.5

1 Loss. 2 First 6 months.

The net investment has been obtained as previously explained, while the earnings are those shown in Appendix Table 37.

The rate of earnings varied from a loss of 3.2 per cent in 1915 to a profit of 15.5 per cent for the first six months of 1919. The highest rate is shown for 1918, when it was 19.5 per cent, while the average rate of revised earnings for the entire period was 10.4 per cent.

Sec. 7. Recapitulation of revised earnings.

The revised rates of earnings from the petroleum business for the five large integrated companies operating in the Pacific coast territory have already been shown separately, and they have been summarized in the table below in order to facilitate a comparison of the different companies for each year of the entire period. The average rate of earnings for all companies and for each company for the entire period is also shown.

Table 41, below, shows that the operations of the Standard Oil Co. (California) from the petroleum business were generally more profitable than were those of any other company, while those of the Shell Co. of California were usually less profitable than the other companies. The years 1914 and 1915 were years by far the least profitable, while 1918 and the first half of 1919 were very profitable for all companies. The recapitulation of the rate of earnings for each company and the average rate for all the years is shown in the table following.

TABLE 41.—*Revised rate of earnings for five large companies in petroleum business, 1914—June 30, 1919.*

Company.	1914.	1915.	1916.	1917.	1918.	1919, 1 year.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Standard Oil Co. (California)	12.2	10.7	20.2	25.4	32.1	22.4
Union Oil Co. of California	4.3	1.0	14.3	14.5	31.0	15.5
Associated Oil Co.	3.6	3.1	4.3	11.5	17.8	10.2
General Petroleum Corporation	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Shell Co. of California	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Average for all companies	8.8	7.9	14.4	19.2	26.0	17.0

[illegible] Loss.

As already pointed out, the combined rate of earnings for all companies covered show moderate earnings in 1914, viz, 8.3 per cent, and a still lower rate, 7 per cent, in 1915. Beginning in 1916 the revised rate of earnings for all these companies was 14.4 per cent, which increased to 19.2 per cent in 1917. The effect of the higher prices of crude petroleum and refined petroleum products in 1918 is reflected in the combined rate of earnings of these companies, which was 26 per cent. There was a slight decline for the first six months of 1919, when an average of 23.6 per cent is shown. The general average for all the companies for the entire period was 17 per cent.

CHAPTER VI.

COSTS, INVESTMENT, AND EARNINGS IN CRUDE PETROLEUM PRODUCTION.

Section 1. Conditions of production.

GENERAL CONDITIONS.—Before taking up the subject of costs in detail, a brief explanation is necessary regarding the system under which oil-producing lands are held and operated. In the ordinary course of the business crude petroleum is produced on land owned in fee by the producer or on land held under lease. Those producers who drill and develop their own lands and pay all expenses of development and operation are the sole owners of the product, while those who have a contract of lease according to which they drill and operate the oil wells, pay all expenses of development and operation, and undertake to compensate the owner or lessor of the land by a payment in money or in crude petroleum based on the quantity produced, which is designated as royalty. In some cases the lessee is required to pay the owner or lessor of the land a specified amount or "bonus" for the lease, which is in addition to any royalty. Sometimes, also, the contract provides for the payment of a small rent which is effective until a producing well has been drilled. When crude petroleum is discovered in paying quantities the rent ceases and the owner or lessor receives his royalty on the quantity produced.

Most lease agreements provide that the lessor at his option shall be paid his royalty portion either in the crude petroleum itself or in cash, based upon the current market price. In some cases the royalty portion is purchased by the operating company, while in other cases it is purchased by one of the large crude petroleum marketing companies. A record is kept of the quantity run from each property, and usually at the end of the month a statement is furnished to the lessor. When the crude petroleum is purchased directly by one of the large marketing companies, this statement gives the date the crude petroleum was run into the pipe line, the quantity, the price per barrel, and total amount. Accompanying this statement the lessor and producer each receive a check in payment in proportion to their respective interests in the crude petroleum. Royalties paid by California producers reporting to the Commission were largely in kind and ranged from one-sixteenth to one-fourth of the gross quantity produced, the most common royalty being one-eighth.

GROSS AND NET PRODUCTION.—This situation as to ownership and operation makes it important for some purposes to distinguish between the gross and net production. The former represents the total quantity of merchantable crude petroleum produced, including the royalty portion, while the net production consists of the merchantable crude that goes to the producer after deducting the royalty portion. Where producers operate on their own land there is no difference in the gross and net barrelage, and the cost per barrel is the same. In the case of those operating on leased lands with a royalty in kind the gross and net barrelage and the costs per barrel necessarily differ, as

such operators pay all expenses of operation, although their receipts and profits are based upon the net product.

In Table 14, page 62, the total production for all companies reporting to the Commission is shown and comparison is made with the total production for the State. Table 42, below, gives only the production for the companies that are included in the consideration of costs.

TABLE 42.—*Crude petroleum produced by companies included in the consideration of costs, in barrels of 42 gallons, 1914–June 30, 1919.*

Year.	Number of companies.	Production.			Net oil.	Royalty oil.
		Gross.	Net.	Royalty.		
		Barrels.	Barrels.	Barrels.	Per cent.	Per cent.
1914	80	16,[illegible],667	[illegible]	[illegible]	93.4	6.6
1915	107	19,[illegible],241	[illegible]	[illegible]	92.3	7.7
1916	130	24,[illegible],783	[illegible]	[illegible]	93.3	6.7
1917	121	74,[illegible],130	[illegible]	[illegible]	92.5	7.5
1918	123	93,[illegible],115	[illegible]	[illegible]	91.7	8.3
1919[1]	139	41,118,909	37,[illegible],[illegible]	[illegible],[illegible]	93.0	7.0
Total		273,[illegible],[illegible]	[illegible],[illegible],[illegible]	[illegible],[illegible],[illegible]	92.7	7.3

[1] First 6 months.

This table shows for each year the number of producing companies that furnished sufficient information for the purpose of computing costs, together with the gross and net quantity of crude petroleum produced and the quantity of the royalty portion. It will be seen from the data that the proportion of the royalty portion ranged from about one-sixteenth to about one-twelfth. While there was a substantial increase in the total quantity of crude petroleum produced, the proportion of the net crude remained fairly constant, although in the last three years of the period there was a slight decrease accompanied by a corresponding increase in the percentage of royalty portion. This result was partly due to the increased production of some of the largest companies from leased lands and partly by the increase in the number of companies operating upon leased lands. Thus, out of the total number of companies covered in the different years, in 1914 there were 44 companies operating upon leased lands as compared with 69 companies in 1918 and 61 in 1919.

Section 2. Elements of cost of production.

Operating costs as computed by the Commission include all items of expense properly chargeable to the operation and maintenance of wells and producing property. In this report operating costs are segregated into four main divisions, namely, lifting expense, general and administrative expense, depreciation and depletion.

LIFTING EXPENSE.—Lifting expense includes the items relating directly to the cost of operating wells and raising the crude petroleum to the surface and running it into the producers' tank. This item is subdivided into operating labor, fuel and water, supplies, repairs, including cleaning out and redrilling, teaming and trucking and miscellaneous items.

GENERAL AND ADMINISTRATIVE EXPENSE.—General and administrative expense includes all items of a general character, such as salaries of officials and office force, office rent and supplies, property insur-

ance, legal expenses, and all other general items properly chargeable to the production of crude petroleum.

DEPRECIATION AND DEPLETION.—The items of depreciation and depletion are important elements of the cost of producing crude petroleum. There was no uniform method of treating these items by those engaged in producing crude petroleum in California. Depreciation being applicable to different classes of tangible property with respect to which the actual cost is a matter of record, little difficulty was experienced in determining rates which appear reasonable. On the other hand, the subject of depletion presented many difficulties. In the first place, the reports received from producing companies showed a wide variation in the method of handling depletion. Some companies included it with depreciation and charged off a specified amount per barrel of product. Others omitted both charges entirely. Many companies followed the regulations of the Treasury Department for taxation purposes, while others, including some of the very largest companies, adopted rates which they considered more consistent with their experience and which in the long run will meet the primary object of this important element of cost.

In arriving at the determination of the method of treating depreciation and depletion a careful study was first made of the methods adopted by companies submitting the most complete reports. This was followed by a critical examination and comparison of the production records for the California oil fields. As a result of this study and comparison it was finally decided that the most practical plan would be the adoption of a reasonable average rate based upon the original cost of the producing properties and equipment and what may be considered a highly probable average period of productivity for the oil lands, over which the allowance should extend until the full amount of investment would be finally charged off or recovered. The following rates were adopted: Depreciation on well equipment has been computed at 5 per cent per annum; all other producing equipment and fixed assets, at 10 per cent per annum, and depletion on the original cost of producing oil lands has been charged at the rate of 5 per cent per annum.

In reaching the final determination full consideration was given to the methods and results shown by companies whose reports bore evidence of careful accounting methods. Among the number, one of the oldest and largest companies states that it estimated the productive life of its producing property at 25 years, and therefore it had fixed its charge for depletion, based on original cost, at 4 per cent per annum. Another company that produced more than 5,000,000 barrels of crude petroleum annually reported depletion charges on a barrel basis which in only one year exceeded 5 per cent on original cost, the average for the period being about 3.5 per cent. A third company producing more than 5,000,000 barrels of crude petroleum in 1919 charged depletion on a barrel basis which amounted to less than 5 per cent on original cost in that year, while its average for the period under consideration was about 5.4 per cent. The average rate for these three companies in 1919 was about 4.2 per cent. While the rate of 5 per cent adopted by the Commission may appear a little too large in comparison with the actual accounting of some of the largest and most successful producing companies, it

makes a reasonable allowance for the fact that some companies require a slightly higher rate.

CASINGHEAD GASOLINE.—In California practically all operations for natural gas are conducted in conjunction with the production of crude petroleum and the cost incurred in such production has been included with that for crude petroleum. Therefore, for the purpose of this report, the income from natural gas is considered incidental to the crude petroleum producing business, and all the costs incurred in its production were included with those for crude petroleum, the income therefrom has been credited to the cost of production. Raw casing-head gasoline being a by-product which is produced simultaneously with crude petroleum, the net receipts from this source are considered a proper credit to the cost of producing the crude petroleum itself, but owing to the methods employed in handling this product in the California oil fields it is impracticable to secure satisfactory data concerning it, and no credits for casing-head gasoline, therefore, have been made to the cost of producing crude petroleum.

ROYALTY.—The most common practice of royalty charge in California appears to be a definite share of the crude petroleum produced, but often the lessor is given the option to take either his share of the crude or to receive its value at the current price. Even where the terms of the royalty contract provide for payment in kind the operator generally buys the crude at the market price. In practice, therefore, it makes little or no difference to the lessor how the terms of the contract are drawn in this particular so far as the amount he receives is concerned, nor to the operator with respect to taking the oil and the amount he pays for it. It does make a difference, however, in cost accounting theory and its correct practical application. It is quite likely under the circumstances that often neither the lessor nor the lessee have any definite understanding in an option arrangement whether the money is paid on the royalty contract or as a purchase price for the crude petroleum, and to get the details on this matter for the various lessors of each company for each year under the circumstances would be well nigh impossible. The Commission has, therefore, taken the royalty payments on the basis reported by the companies. Most companies did not show a money charge for royalty but merely the quantity of royalty oil from which the royalty charge was computed on the basis of the cost of production. A few companies reported money royalties only or both money royalties and royalties in kind.

EXPENDITURES DISALLOWED.—In order to present more accurate costs and to secure greater comparability between the costs for the different companies the Commission has made certain revisions in the figures as shown by reports obtained from the companies. Some companies included in their costs certain items which should have been capitalized, such as drilling costs and expenses incurred in the acquisition and development of oil properties. In some cases the expense of nonproductive drilling and interest on short-term notes were included in producing costs; these items have been charged directly to profit and loss. Other items taken out of cost, such as abandoned wells, canceled and surrendered leases, and Federal income and excess profits taxes, also bond interest, bonuses amounting to a distribution of profits, and stock discounts have been charged to the surplus account.

COMPANIES COVERED.—As already stated, some of the schedules obtained from companies engaged in producing crude petroleum were not sufficiently complete for use in computing the cost of production. Only such reports which were reasonably satisfactory have been used in the determination of the costs of production, investments, and profits for crude petroleum producing companies. As shown in Table 42, the smallest number of companies submitting satisfactory reports was 96 in 1914 and the largest was 134 in 1918. The production of companies which are used in the costs presented in this chapter represent the major portion of the total annual production in California. In 1914 the companies included produced 57.7 per cent of the State's total, in 1915 those included in costs produced 61.6 per cent, in 1916 the proportion increased to 69.7 per cent, the following year the percentage covered was 76.9 per cent, in 1918 it increased to 79.4 per cent, while in 1919, assuming the production for the first six months to be half of that for the year, the proportion would be 81.2 per cent.

PRODUCTION BY GROUPS.—The gross production of crude petroleum for the companies for which costs are shown have been placed in four groups as follows: Group 1 includes all companies which produced 1,000,000 barrels or over in each year; group 2 is made up of companies producing from 250,000 to 1,000,000 barrels; group 3 consists of companies having a production ranging from 50,000 to 250,000 barrels; while group 4 covers the companies producing less than 50,000 barrels each year. Under this grouping a company may be in group 1 in one year and in group 4 the next. This method of classifying the companies shows the effect of large output upon the cost of production. Table 43 shows the number of companies and the quantity and proportion produced by each group and the average production per company, in barrels, 1914–June 30, 1919:

TABLE 43.—*Production of crude petroleum, by groups of companies (reporting), in barrels of 42 gallons, 1914–June 30, 1919.*

Year.	Group.	Range in production (in barrels).	Number of companies.	Quantity.		Per cent which group is of the total.	Per cent which the total is of the State's total.
				Total.	Average per company.		
1914	1	Over 1,000,000	10	45,207,742	4,520,774	73.7	42.5
	2	250,000 to 1,000,000	23	9,267,000	402,913	15.1	8.7
	3	50,000 to 250,000	23	3,000,000	130,435	4.9	2.7
	4	Under 50,000	40	3,867,000	96,675	6.3	3.6
		Total	96	61,341,742	639,081	100.0	57.7
1915	1	Over 1,000,000	9	46,000,000	5,111,111	71.1	43.8
	2	250,000 to 1,000,000	19	10,000,000	526,316	15.4	9.5
	3	50,000 to 250,000	23	3,000,000	130,435	4.6	2.9
	4	Under 50,000	45	6,000,000	133,333	9.3	5.7
		Total	96	65,000,000	677,083	100.0	61.9
1916	1	Over 1,000,000	11	61,000,000	5,545,455	75.3	52.5
	2	250,000 to 1,000,000	19	10,000,000	526,316	12.3	8.6
	3	50,000 to 250,000	23	3,000,000	130,435	3.7	2.6
	4	Under 50,000	45	7,000,000	155,556	8.7	6.0
		Total	98	81,000,000	826,531	100.0	69.7
1917	1	Over 1,000,000	11	71,000,000	6,454,545	77.3	59.5
	2	250,000 to 1,000,000	19	10,000,000	526,316	10.9	8.4
	3	50,000 to 250,000	23	3,000,000	130,435	3.3	2.5
	4	Under 50,000	45	8,000,000	177,778	8.7	6.7
		Total	98	92,000,000	938,776	100.0	77.1
1918	1	Over 1,000,000	11	81,000,000	7,363,636	77.3	61.4
	2	250,000 to 1,000,000	19	11,000,000	578,947	10.5	8.8
	3	50,000 to 250,000	23	3,000,000	130,435	2.9	2.2
	4	Under 50,000	45	10,000,000	222,222	9.3	7.5
		Total	98	105,000,000	1,071,429	100.0	79.9
1919	1	Over 1,000,000	11	85,000,000	7,727,273	77.3	64.4
	2	250,000 to 1,000,000	19	11,000,000	578,947	10.5	8.3
	3	50,000 to 250,000	23	3,000,000	130,435	2.9	2.2
	4	Under 50,000	45	10,000,000	222,222	9.3	7.0
		Total	98	109,000,000	1,112,245	100.0	81.9

TABLE 43.—*Production of crude petroleum, by groups of companies reporting, in barrels of 42 gallons, 1914–June 30, 1919*—Continued.

Year.	Group.	Range of production (in barrels).	Number of companies reporting production.	Quantity. Total.	Quantity. Average per company.	Per cent of total for State.	Per cent of State's total.
				Barrels.	Barrels.	Per cent.	Per cent.
1918	1	Over 1,000,000	10	63,372,236	6,320,237	73.2	66.2
	2	250,000 to 1,000,000	22	16,041,770	376,173	12.1	16.4
	3	50,000 to 250,000	67	5,643,017	119,013	7.9	5.6
	4	Under 50,000	35	1,205,698	25,728	1.8	1.3
		Total	134	86,262,719	660,139	100.0	79.4
1919[1]	1	Over 1,000,000	11	22,563,844	6,454,667	55.3	66.0
	2	250,000 to 1,000,000	17	4,917,684	223,259	11.9	8.7
	3	50,000 to 250,000	19	3,254,189	121,611	3.3	4.6
	4	Under 50,000	6	660,769	12,109	1.4	1.1
		Total	11	41,118,935	343,657	100.0	80.2

[1] First 6 months. Percentages on annual basis.

In the above table, for the first half of 1919, the companies have been placed in groups on the assumption that their production for the entire year would be double that for the first six months.

The table gives the quantity of crude petroleum produced each year by the different groups, the average production per company, and the percentage of the total reported and the proportion of the State total which was produced by each group. The companies having the largest production, which are included in group 1, produced over 75 per cent of the total reported and from 44 to 66 per cent of the State total. For this group the highest percentage shown of that reported and of the total for the State was for the first six months of 1919, and the lowest in 1915. The number of companies producing 1,000,000 barrels or over per annum varied from 7 in 1915 to 11 in the first half of 1919, and the average per company varied from 4,594,255 barrels in 1914 to 6,320,237 barrels in 1918.

Group 2, which includes companies producing from 250,000 barrels to 1,000,000 annually, supplied a larger percentage of the State's total, 11.8 per cent, in 1915 than in any other year, while the smallest proportion, 8.9 per cent, was contributed by this group in 1914. The number of companies included in this group varied from 18 to 22. The average production per company varied from 223,259 barrels for the first half of 1919, on an annual basis, to 528,633 barrels in 1915.

Group 3 contributed only 3.7 per cent of the total production of the State during 1914, while its maximum was 5.6 per cent in 1917. The average production per company fluctuated from 100,076 barrels in 1914 to 119,013 barrels in 1918.

Group 4, which includes the companies having the smallest production in each year, contributed only 0.8 per cent of the total for the State in 1914, while its maximum was 1.4 per cent in 1915. While its production was very small, this group included from about 31 to 42 per cent of the total number of companies. The average per company for this group was larger during the first two years than in the latter part of the period. The highest average per company was in 1914, when it was 23,921 barrels, and the smallest for a full year in 1917, when it was only 23,117 barrels.

The average production per company for all companies reporting was higher in 1914 than in any other full year, and it was the smallest in 1915, but the first half of 1919 indicates a still larger average. In 1914 the average was 623,135 barrels and in 1915 only 515,947. This large decline was due to the fact that a number of large wells were brought in during 1914, which produced very little crude petroleum in 1915. One company that produced in excess of 1,000,000 barrels in 1914 produced less than 25,000 barrels in 1915.

Section 8. Cost of production.

TOTAL COST BY GROUPS.—As already stated, not all of the smaller producing companies furnished satisfactory information covering their cost of producing crude petroleum. In 1914 there were 125 companies that submitted reports showing the quantity of crude produced, while only 96 contained satisfactory cost data, and in 1918 there were 168 that reported production and only 134 that submitted satisfactory cost information. The companies have been placed in four groups, based on the quantity produced in each year. The following table shows the total cost of producing crude petroleum in California for all companies from whom satisfactory information was obtained, for the period 1914–June 30, 1919:

TABLE 44.—*Crude petroleum produced, the cost of production exclusive of royalty, and the total cost of production, as revised by the Commission, by groups, 1914–June 30, 1919.*

Year.	Group.	Range of production (in barrels).	Number of companies.	Quantity (barrels).	Cost exclusive of royalty.	Royalty cost.	Total cost.
1914	1	Over 1,000,000	10	45,962,160	$40,114,970	$609,187	$41,324,157
	2	200,000 to 1,000,000	22	8,227,000	2,651,000	338,000	2,989,000
	3	20,000 to 200,000	25	1,921,000	1,408,000	156,000	1,564,000
	4	Under 20,000	37	267,000	241,000	28,000	269,000
		Total	94	56,377,160	44,414,970	1,231,187	46,146,157
1915	1	Over 1,000,000	7	29,446,000	13,679,000	387,000	14,066,000
	2	200,000 to 1,000,000	22	12,277,000	2,000,000	271,000	2,271,000
	3	20,000 to 200,000	25	2,000,000	1,615,000	172,000	1,787,000
	4	Under 20,000	33	1,000,000	1,000,000	28,000	1,028,000
		Total	87	44,723,000	18,294,000	858,000	19,152,000
1916	1	Over 1,000,000	9	48,241,000	13,000,000	1,011,000	14,011,000
	2	200,000 to 1,000,000	25	8,000,000	2,000,000	000,000	2,000,000
	3	20,000 to 200,000	45	4,000,000	2,000,000	000,000	2,000,000
	4	Under 20,000	40	1,000,000	1,000,000	00,000	1,000,000
		Total	119	61,000,000	20,000,000	2,000,000	22,000,000
1917	1	Over 1,000,000	10	00,000,000	15,000,000	1,000,000	16,000,000
	2	200,000 to 1,000,000	22	9,000,000	3,000,000	000,000	3,000,000
	3	20,000 to 200,000	40	5,000,000	3,000,000	000,000	3,000,000
	4	Under 20,000	23	1,000,000	1,000,000	00,000	1,000,000
		Total	111	75,000,000	22,000,000	2,000,000	24,000,000
1918	1	Over 1,000,000	10	00,000,000	15,000,000	1,000,000	16,000,000
	2	200,000 to 1,000,000	23	10,000,000	4,000,000	000,000	4,000,000
	3	20,000 to 200,000	47	6,000,000	4,000,000	000,000	4,000,000
	4	Under 20,000	55	1,000,000	1,000,000	00,000	1,000,000
		Total	134	90,000,000	24,000,000	2,000,000	26,000,000
1919 [1]	1	Over 1,000,000	11	00,000,000	00,000,000	1,000,000	00,000,000
	2	200,000 to 1,000,000	23	8,000,000	3,000,000	000,000	3,000,000
	3	20,000 to 200,000	39	4,000,000	1,000,000	00,000	1,000,000
	4	Under 20,000	47	000,000	000,000	00,000	000,000
		Total	119	00,000,000	00,000,000	1,000,000	00,000,000

[1] First 6 months.

The above table indicates the importance of the crude petroleum producing business in California, which is covered by the tabulation. In 1914, the costs include 57.7 per cent of the total production of the State, the following year 61.6 per cent, in 1916 to 68.7, 1917 the percentage increased to 76.9 per cent, in 1918 to 79.4 per cent, and the first six months of 1919 to 81.2 per cent. The quantities shown in the above table relate to the total production of marketable crude petroleum for each year.

The amounts shown for the cost, exclusive of royalty, include lifting expense, general and administrative expense, depreciation, and depletion, less credits due to the sale of natural gas. The amount shown for royalty covers both the cost of producing the royalty oil paid in kind and the amounts paid by the companies for the royalty portion which they were required to purchase. Costs by principal items are shown in Appendix Table 38.

COST PER BARREL.—The barrel of 42 gallons is the unit of measurement used by the oil industry in marketing crude petroleum, and it has been used in this report to show the unit cost of production in California. In presenting the per barrel cost of producing crude petroleum the detail has been restricted to four main divisions of expense—namely, lifting expense, general and administrative expense, depreciation, and depletion. The combined total of these items has been credited with the receipts from sales of natural gas, produced in connection with crude petroleum, and to this total is added the cost applicable to the royalty portion or other royalty cost which gives the cost to the operating companies. This method of computing the cost of production takes the actual cost applicable to the total quantity of crude petroleum produced for each of the main items and at the same time gives the additional cost to the operating companies which is incurred by reason of the royalty that many producers were obliged to pay to a greater or lesser extent.

The causes for the advances in the prices of petroleum products which are called for in the resolution directing this inquiry, reach back to the cost of producing the crude petroleum. But consideration of the cost of producing crude petroleum in relation to the prices requires more information than the average cost of production. An important part of the production is obtained at costs above the average cost of production, and the producers of this part, which to some extent, at least, is evidently a necessary part of the supply, must receive an adequate price, or such production will be discontinued; and this lessening of the total production would, if sufficiently large, tend to advance prices. In other words, it is important to set forth the costs of the less fortunate or less efficient producers. This does not mean, however, that the most extreme costs should be given any attention in the consideration of prices, as they are usually temporary factors and have little relation to supply and demand.

COST OF PRODUCTION BY GROUPS.—The companies from whom cost information was secured have been placed in four groups according to the quantity of their annual production. The first group includes all companies producing 1,000,000 barrels or over annually; group 2 covers those having an annual production of from 250,000 to 1,000,000 barrels; group 3 consists of companies having an output of from 50,000 to 250,000 barrels per year, while companies having less than 50,000 barrels production per year have been placed in group 4.

The following table shows the cost of producing crude petroleum per barrel in California, by companies grouped as indicated above, for the period 1914–June 30, 1919:

TABLE 50.—Cost of producing crude petroleum, per barrel of 42 gallons, as reported by 119 companies, by groups, 1914–June 30, 1919.

Year	Group	Number of companies	Lifting	Drilling	Depreciation	Depletion	Credits	Other charges, net	Royalty	Total
1914	1	10	$0.056	$0.046	$0.027	$0.021	$0.004	$0.027	$0.015	$0.192
	2	13	.076	.060	.029	.020	.001	.028	.015	.226
	3	23	.111	.087	.037	.027	.001	.035	.015	.311
	4	65	.245	.167	.052	.035	.001	.050	.015	.563
	Total	99	.095	.075	.033	.024	.001	.033	.015	.276
1915	1	7	.055	.045	.027	.021	.004	.027	.015	.186
	2	25	.077	.060	.029	.020	.001	.028	.015	.229
	3	32	.111	.087	.037	.027	.001	.035	.015	.311
	4	65	.245	.167	.052	.035	(1)	.050	.015	.563
	Total	107	.091	.072	.032	.023	.001	.032	.015	.266
1916	1	9	.056	.046	.027	.021	.004	.027	.015	.192
	2	13	.076	.060	.029	.020	.001	.028	.015	.226
	3	29	.106	.083	.035	.026	.001	.034	.015	.298
	4	66	.276	.172	.054	.036	(1)	.052	.015	.605
	Total	117	.099	.078	.034	.025	.001	.034	.015	.286
1917	1	10	.056	.046	.027	.021	.004	.027	.015	.192
	2	17	.076	.060	.029	.020	.001	.028	.015	.226
	3	29	.106	.083	.035	.026	.001	.034	.015	.298
	4	66	.245	.161	.054	.036	(1)	.052	.015	.563
	Total	122	.098	.077	.034	.025	.001	.034	.015	.284
1918	1	10	.056	.046	.027	.021	.004	.027	.015	.192
	2	17	.076	.060	.029	.020	.001	.028	.015	.226
	3	29	.106	.083	.035	.026	.001	.034	.015	.298
	4	66	.245	.161	.054	.036	(1)	.052	.015	.563
	Total	122	.098	.077	.034	.025	.001	.034	.015	.284
1919	1	10	.125	.055	.027	.021	.004	.027	.015	.266
	2	22	.153	.061	.029	.022	.003	.033	.015	.310
	3	47	.208	.081	.043	.031	.001	.035	.015	.412
	4	54	.431	.119	.063	.045	.001	1.000	.015	1.672
	Total	134	.154	.062	.034	.076	.013	.264	.015	.628
1919 [2]	1	11	.125	.056	.101	.070	.015	.105	.040	.512
	2	22	.153	.061	.115	.080	.003	.134	.060	.606
	3	47	.208	.080	.163	.119	.001	.135	.060	.765
	4	47	.414	.120	.260	.207	.001	1.115	.054	1.969
	Total	119	.150	.060	.100	.075	.013	.210	.054	.488

[1] Deduction. [2] Less than one-half of 1 cent. [3] First 6 months.

The above table shows that group 1, which includes the companies having the largest annual production, had much lower costs of production than any other group, except in 1915, when group 2 was slightly lower, and that the costs for the other three groups increased very materially as the quantity of production decreased. The difference in cost between companies producing 1,000,000 barrels or over per year and those producing from 250,000 to 1,000,000 barrels is not great, particularly in the earlier years; but there is a large difference between the costs of groups 2 and 3, and a still larger difference between those for groups 3 and 4.

The lifting cost is materially lower for group 1 for each year than for any other group, and this item of cost increases very rapidly as the quantity of the annual production for the groups decreases. Group 4 shows the highest costs for each main item of expense throughout the entire period, and group 3 has the second highest cost for each item throughout the period, except for general and administrative

expense for the first three years, when it is lower for this item than group 1. Group 1 shows a comparatively high general and administrative expense throughout the period. Group 2 shows the lowest cost of depletion throughout the period and group 1 the second lowest.

As many of the companies do not have any income from natural gas and a large number operate only on their own oil lands, the credits and royalty items for different groups are not comparable.

The volume of production per well is one of the most important factors in the cost of producing crude petroleum. As a rule, the lower average costs shown for producers having the largest production was chiefly due to their large average production per well. A large volume of production per well is largely the result of good fortune in securing choice oil lands and can be influenced but slightly by the operating companies. In California the larger companies control, either through ownership or lease, the bulk of the best oil lands thus far developed, and their large capital enables them to take advantage of discoveries in new fields by buying choice acreage. The large companies are also doubtless able to make certain economies in their operations that are not practicable for small companies. However, the fact should not be overlooked, that mere good fortune in drilling a big gushing well may give any producer a decided advantage over the largest or the most efficient companies. Sometimes companies have become large because they were fortunate in having highly productive wells with a low cost of production; in other words, large size may sometimes be the result of low cost of production and not the reason for low cost of production.

The effect of the volume of production per well on the cost of production in 1914 is shown in the following table:

TABLE 46.—*Effect of volume of production per well on the cost of production, in barrels of 42 gallons, in California, in 1914.*

Range of production per well per annum in barrels.	Number of companies reporting.	Cost per barrel.					
		Lifting expense.	General and administrative.	Depreciation.	Depletion.	Credits.	Total.
Over 100,000	3	$0.067	$0.021	$0.033	$0.009		$0.130
50,000 to 100,000	7	.070	.027	.033	.011	$0.013	.128
10,000 to 50,000	21	.083	.031	.039	.013	.013	.153
5,000 to 10,000	23	.110	.043	.049	.016	.013	.205
Under 5,000	21	.145	.059	.059	.020	.013	.270

The lifting expense and depreciation show a rapid increase as the quantity produced per well per year is decreased. The general and administrative expense and depletion are very low for the largest production but do not increase uniformly as the production per well decreases. The total cost shows a steady increase as the volume produced per well decreases.

The quantity of the crude petroleum produced affects very materially every element of cost. However, its full influence on cost can not be shown on account of the effect of various other factors such as the investment in wells and equipment, the investment in producing property and the quality of the crude petroleum pro-

depreciation, depletion, and interest. Depreciation, which is quite an important item, depends upon the cost of the wells and equipment. The cost of the wells varies greatly according to the depth, the character of the formations, and the water and other difficulties encountered in drilling. The depletion charge, which is another important element of cost, depends upon the amount of the investment in oil lands. Some companies have been fortunate in securing their oil lands for a small investment, while others, owning no more productive property, have investments many times larger. Hence, so far as an individual company is concerned, its cost per barrel may be relatively low, while its production per well is small because its depreciation and depletion are very low, while the costs of another company having a large production per well are burdened with very high costs for these items. Differences in the quality of the crude petroleum produced in different fields and on different properties in the same field affects the lifting cost. The light grades of crude petroleums are much more easily brought to the surface than the heavy low grade crudes, some of which are very viscous.

INCREASE IN COST.—The rapid increase in the cost of producing crude petroleum in California during the period 1914–June 30, 1919, is shown in the following table, which shows the increase in the principal items of cost, by index numbers, based on 1914 as 100:

TABLE 6.—*Index numbers showing changes in items of cost of production, as computed by the Commission, 1914–June 30, 1919.*

Year	Lifting.	General and administrative.	Depreciation.	Depletion.	Royalty.	Total
1914	100	100	100	100	100	100
1915	102	108	110	111	105	110
1916	120	127	116	113	127	122
1917	103	142	126	112	163	128
1918	187	198	143	108	264	153
1919	229	214	146	105	325	169

[1] First 6 months.

So far as the general movement of costs is concerned, the index numbers show, with the exception of depletion, that the general trend was upward throughout the period. The increase from year to year is more pronounced beginning with 1916. The greatest changes are shown for lifting, which increased 129 per cent, and general and administrative expense the increase for which was 114 per cent. Throughout the period the lifting cost constituted from one-fourth to one-third of the total cost of producing crude petroleum. All operating labor items are included in lifting expense and the maximum increase shown for this part reflects largely the advance in wages of field employees. Depreciation increased 46 per cent and depletion, after reaching its maximum in 1916, declined steadily until it was only 5 per cent higher for the first six months of 1919 as compared with 1914. The total average cost shows a steady increase, being 69 per cent higher for the first half of 1919 as compared with the year 1914. Another important factor which was responsible for the increase was the decline in the average production per well.

(See P. 131.)

Cost per unit of production.—There is a very wide range in the costs as computed by the Commission for the different producing companies. The lowest costs for each individual company and the lowest range in costs for all companies are shown for 1914 and the highest for a full year's operations in 1918. In 1914 the lowest company cost was 20.021 per barrel and the highest $1.26, while in 1918 the lowest was $0.18 per barrel and the highest $5.26. The costs for 96 companies in 1914 arranged from the lowest to the highest cost are given in Appendix Table 39, while the following table shows such costs for 133 companies in 1918.

TABLE 43.—*Lifting cost and total cost of producing crude petroleum per barrel, by companies, arranged from the lowest to the highest total cost for 1918.*

Company.	Lifting cost.	Total cost.	Per cent of production (total cost).	Company.	Lifting cost.	Total cost.	Per cent of production (total cost).	Company.	Lifting cost.	Total cost.	Per cent of production (total cost).
1	$0.032	$0.180		45	$0.225	$0.225		89	$1.224	$1.224	
2	.115	.181		46	.227	.227		90	1.227	1.227	
3	.140	.184		47	.228	.228		91	1.228	1.228	
4	.150	.190		48	.232	.232		92	1.232	1.232	
5	.160	.201		49	.233	.233		93	1.233	1.233	
6	.161	.201		50	.237	.237		94	1.237	1.237	
7	.170	.201		51	.237	.237		95	1.239	1.239	
8	.172	.201		52	.237	.237		96	1.239	1.239	
9	.180	.201		53	.240	.240		97	1.239	1.239	
10	.180	.201		54	.240	.240		98	1.239	1.239	
11	.180	.201		55	.240	.240		99	1.239	1.239	
12	.180	.201		56	.240	.240		100	1.239	1.239	
13	.180	.201		57	.240	.240		101	1.239	1.239	
14	.180	.201		58	.240	.240		102	1.239	1.239	
15	.180	.201	15.0	59	.240	.240		103	1.239	1.239	
16	.180	.201		60	.240	.240		104	1.239	1.239	
17	.180	.201		61	.240	.240		105	1.239	1.239	
18	.180	.201		62	.240	.240		106	1.239	1.239	
19	.180	.201		63	.240	.240		107	1.239	1.239	
20	.180	.201	54.9	64	.240	.240		108	1.239	1.239	
21	.180	.201		65	.240	.240		109	1.239	1.239	
22	.180	.201		66	.240	.240		110	1.239	1.239	
23	.180	.201		67	.240	.240		111	1.239	1.239	
24	.180	.201		68	.240	.240		112	1.239	1.239	
25	.180	.201		69	.240	.240		113	1.239	1.239	
26	.180	.201		70	.240	.240		114	1.239	1.239	
27	.180	.201		71	.240	.240		115	1.239	1.239	
28	.180	.201		72	.240	.240		116	1.239	1.239	
29	.180	.201		73	.240	.240		117	1.239	1.239	
30	.180	.201		74	.240	.240		118	1.239	1.239	
31	.180	.201		75	.240	.240		119	1.239	1.239	
32	.180	.201		76	.240	.240		120	1.239	1.239	
33	.180	.201		77	.240	.240		121	1.239	1.239	
34	.180	.201		78	.240	.240		122	1.239	1.239	
35	.180	.201		79	.240	.240		123	1.239	1.239	
36	.180	.201		80	.240	.240		124	1.239	1.239	
37	.180	.201		81	.240	.240		125	1.239	1.239	
38	.180	.201		82	.240	.240		126	1.239	1.239	
39	.180	.201		83	.240	.240		127	1.239	1.239	
40	.180	.201		84	.240	.240		128	1.239	1.239	
41	.180	.201		85	.240	.240		129	1.239	1.239	
42	.180	.201		86	.240	.240		130	1.239	1.239	
43	.180	.201		87	.240	.240		131	1.239	1.239	
44	.180	.201		88	.240	.240		132	1.239	1.239	
								133	1.239	1.239	

The costs for individual companies cover 96 companies in 1914 and 133 in 1918. The costs for one company, which were included in the group totals, have been omitted from this tabulation because they are of doubtful accuracy and would be misleading. The inclusion of this company's costs in the totals for all companies did

in the group totals does not affect the averages appreciably, as its production is a very small proportion of the total.

The two lowest costs in 1914, namely, 3.1 cents per barrel and 3.3 cents per barrel, were exceptional and were the result of a very large initial production per well from flowing wells. The lifting costs were only 1.8 cents per barrel for the company showing the lowest cost and 1 cent per barrel for the other company. In 1918, on the other hand, a number of companies show very high costs, ranging as high as $5.36 per barrel for one company. Such high costs are not significant, as they represent very unfavorable operating conditions. In 1914, 7 companies show costs in excess of $1 per barrel, while in 1918 there were 40 companies, or about one-third of the total companies for which costs are shown, that show costs in excess of $1 per barrel. The 7 companies in 1914 which show costs in excess of $1 per barrel produced only 188,320 barrels, or an average of 26,190 barrels per company, for the entire year. The 41 companies having costs in excess of $1 per barrel in 1918 produced 2,450,050 barrels, or an average of 59,758 barrels per company, for that year. While these 41 companies represent almost 31 per cent of the total number, they produced only 3 per cent of the total production. As shown in Table 45, the average cost for all companies in 1918 was 42.8 cents per barrel, while as shown above 89.1 per cent of the total was produced by 40 companies at a cost not exceeding 56.8 cents per barrel. In 1914, 13 companies produced 50.6 per cent of the total included in Appendix Table 39 at costs ranging from 3.1 cents to 24.8 cents per barrel; almost 80.5 per cent of the total was produced at a cost not exceeding 38.6 cents per barrel; 95.6 per cent was produced at a cost not exceeding 48.3 cents per barrel; and the cost of producing 98 per cent was 70 cents per barrel or less, while the cost of the remaining 2 per cent ranged from 70.1 cents to $1.961 per barrel.

The 1918 costs average much higher than those for 1914, and the range between the lowest and highest cost was much greater. Ten companies produced 42.1 per cent of the total quantity of crude petroleum covered in the above table at costs ranging from 14 cents to 30.5 cents per barrel. Fifteen companies produced 58 per cent of the total at costs not exceeding 35.7 cents per barrel; 69.6 per cent was produced at not exceeding 45.9 cents per barrel; 89.1 per cent at a cost of 56.8 cents or less per barrel; and 99 per cent at a cost not exceeding $1.146 per barrel; while the costs for the remaining 1 per cent ranged from $1.133 to $5.364 per barrel.

There is a very wide range in the lifting cost. The lowest for the entire period was 1 cent per barrel for the companies showing the second lowest costs in 1914, while in 1918 the lowest lifting cost was 3.2 cents per barrel. The highest lifting cost in 1914 was 72.1 cents per barrel and in 1918 it was $1.204 per barrel. As a rule, the companies showing the lowest costs have lower lifting costs than those having high total costs; for example, in 1914 the lifting cost for companies producing crude petroleum at less than 25 cents per barrel ranged from 1 cent to 10.2 cents, those showing costs from 25 to 50 cents per barrel show lifting costs of from 3.7 cents to 29 cents per barrel, and companies whose total costs range from 50 to 75 cents per barrel had lifting costs varying from 7.4 cents to 31 cents per barrel.

The wide range in the cost of producing crude petroleum, the varying importance of the item of lifting cost, and the relative position of the companies, according to the size of their annual production, is graphically presented in Chart 1, opposite, which shows the 1918 costs for 123 companies arranged in order from the lowest to the highest total cost.

COST OF PRODUCTION BY FIELDS.—There is a considerable difference in the quality of the crude petroleum produced in the different fields, in the average depth of the wells, in the cost of drilling them, in the number of acres per well, in the productivity of the wells and leases, and in the original cost of the property. All of these factors have an effect upon the cost of producing crude petroleum. The quality of the crude affects the lifting cost, the cost of wells, the amount of depreciation, and the cost of the properties the amount of depletion, while the volume of production affects all items and is the most important factor in crude petroleum production. As shown in Appendix Table 4, the Summerland field had the smallest acreage per well in 1918, only 1.6 acres, and it produced 237 barrels per acre, while the Santa Maria field had 23.3 acres per well and produced 893 barrels per acre. The largest number of barrels per acre was secured in the Whittier-Fullerton field, which produced 4,754 barrels per acre in 1918.

The cost of producing crude petroleum for companies operating in more than one field was lower than that for producers in any of the fields excepting the McKittrick field, and it was lower than that field for three of the five and one-half years. This comparative lowness of cost is due to the fact that the large producers own and operate most of the best oil lands in the different fields in the State. The range in the costs by fields throughout the period was very wide; for example, the lowest cost for a particular field was 23.2 cents in 1914 and the highest 42.7 cents, while in 1918 it varied from 38 cents to 75.6 cents. In other words, in 1914 the highest cost by fields was 72 per cent greater than the lowest, while in 1918 it was 99 per cent greater. The following table shows the cost of producing crude petroleum by fields for the period 1914–June 30, 1919:

TABLE 40.—*Cost of production per barrel, by fields, 1914–June 30, 1919.*

Fields.	1914	1915	1916	1917	1918	1919
McKittrick	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Whittier-Fullerton	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Coalinga	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ventura Avenue	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Kern River	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Midway-Sunset	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Los Angeles and San Luis	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Santa Maria	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
All fields	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] Less than 1 cent.

There was a considerable increase in the cost of production for each field from 1914 to June 30, 1919. The smallest increase is shown for the Coalinga field, which only increased from 42.2 cents to 67 cents, while the largest increase was from 42.5 cents to 93.2 cents for

CHART 1.

COMPARISON OF THE LIFTING COSTS AND TOTAL COS

OF 133 CRUDE PETROLEUM PRODUCING COMPANIES IN 1918 HAVING 79 PER CENT OF THE PRODUCTION OF CALIFORNIA

LEGEND

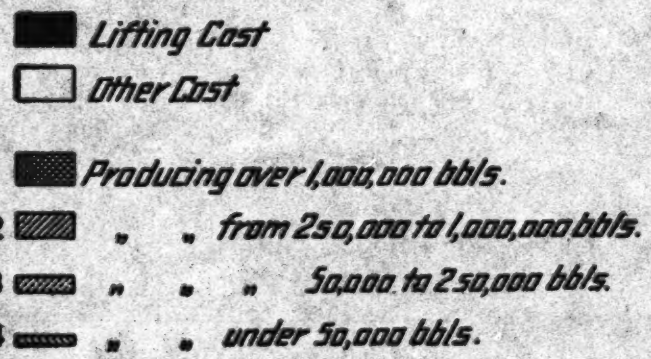

Lifting Cost
Other Cost
Group 1 Producing over 1,000,000 bbls.
" 2 " " from 250,000 to 1,000,000 bbls.
" 3 " " " 50,000 to 250,000 bbls.
" 4 " " under 50,000 bbls.

CHART 1.

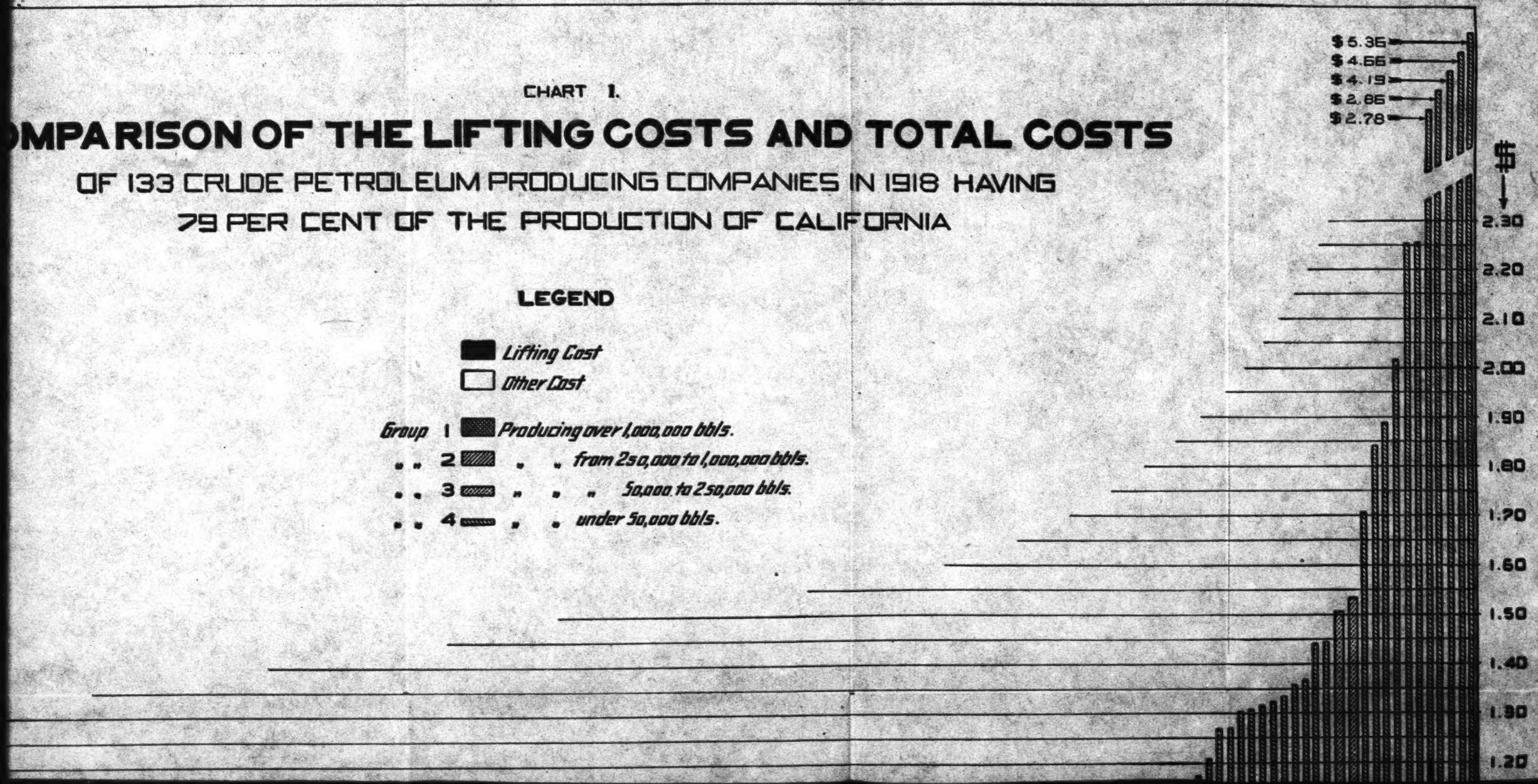
OMPARISON OF THE LIFTING COSTS AND TOTAL COSTS

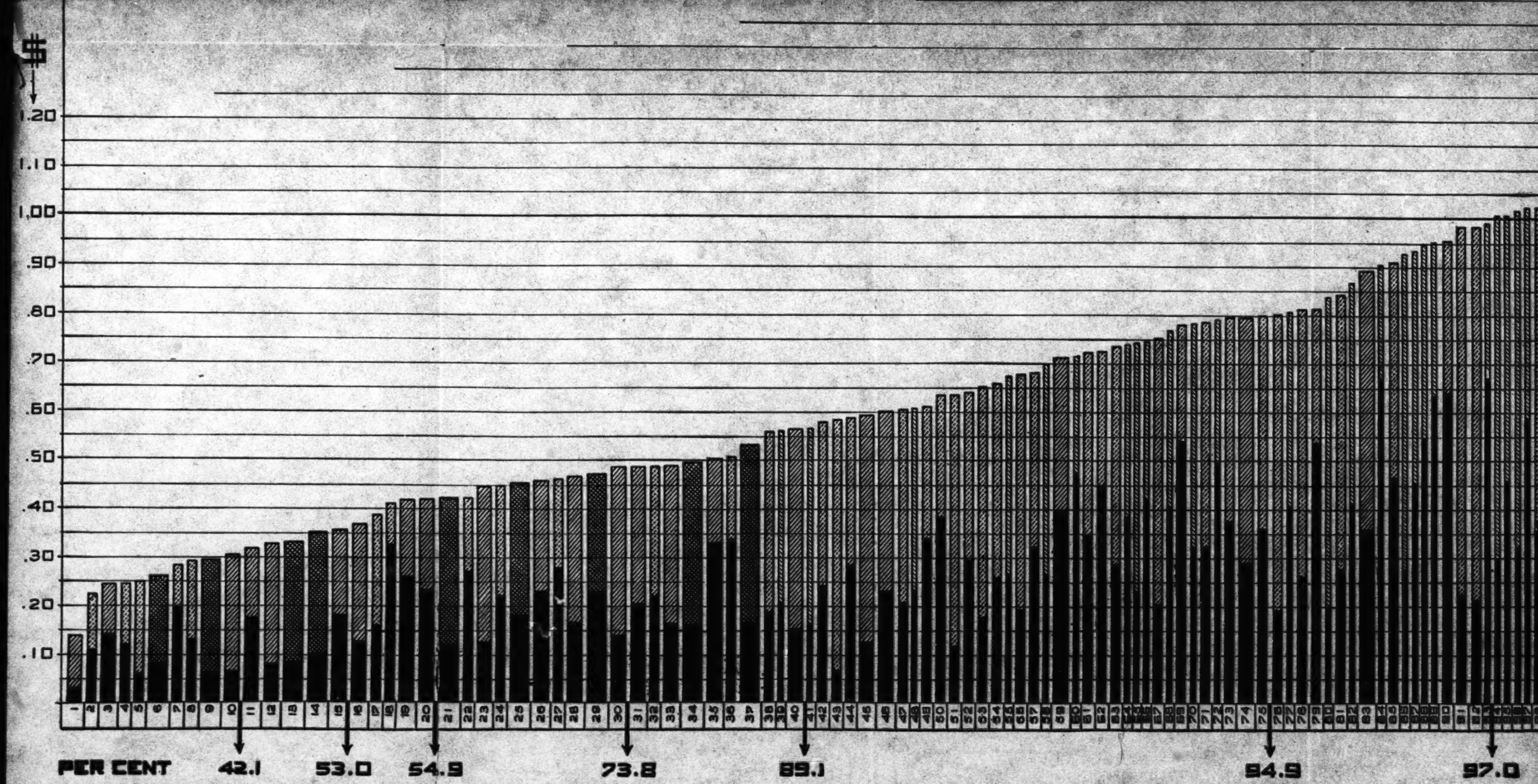
OF 133 CRUDE PETROLEUM PRODUCING COMPANIES IN 1918 HAVING 79 PER CENT OF THE PRODUCTION OF CALIFORNIA

LEGEND

- Lifting Cost
- Other Cost

Group 1 Producing over 1,000,000 bbls.
" 2 " " from 250,000 to 1,000,000 bbls.
" 3 " " " 50,000 to 250,000 bbls.
" 4 " " under 50,000 bbls.

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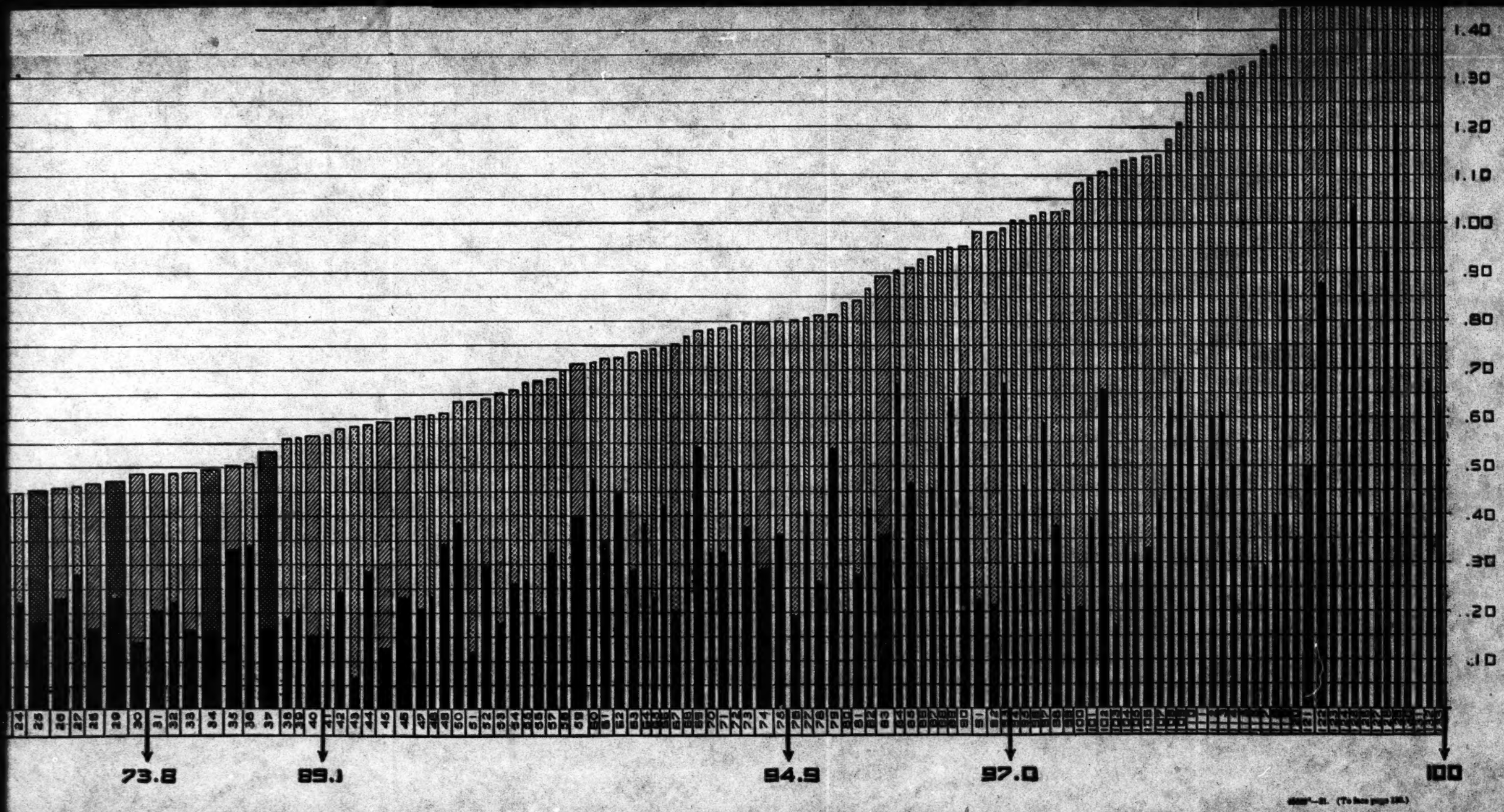
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the Santa Maria field. The small increase in the Coalinga field was the result of an increase in the average annual production per well from 15,470 barrels in 1914 to 27,134 barrels in 1918. In this field the cost increased whenever the average annual production per well declined and it decreased when the average production per well increased. In the Midway-Sunset field the average production per well declined steadily from 34,499 barrels in 1914 to 16,281 barrels in 1918, while the costs increased steadily from year to year. Every oil field for which costs are presented shows an increase in cost for every year when the average production per well decreased, while in every case except the Santa Maria field an increase in the average production per well resulted in a lower cost per barrel. This relation between the quantity produced per well and cost fluctuations is clearly shown in the following table:

TABLE 50.—Relation of per barrel cost of production and the average annual production per well for representative fields, 1914–1918.

Year	Ventura field.		McKittrick field.		Kettleman Hills field.		Coalinga field.	
	Average production per well.	Cost per barrel.	Average production per well.	Cost per barrel.	Average production per well.	Cost per barrel.	Average production per well.	Cost per barrel.
1914								
1915								
1916								
1917								
1918								

The relation between the cost per barrel and the average production per well shown in the above table indicates that the increase in cost for the period was partly the result of the decline in the average production per well.

Detailed information concerning each field is shown in Appendix Table 40, while in the following table the more important items are shown for 1918:

TABLE 51.—Important factors in the cost of production of crude petroleum, by fields, 1918.

Field.	Production.		Cost.		
	Total.	Average per well.	Per barrel.	Total.	
Ventura					
McKittrick					
Kettleman Hills					
Coalinga					
Midway-Sunset					
Santa Maria					
Total					

[1] See Ch. III for a description of the different fields.

As a rule, the investment in oil wells increases with the depth; hence, this factor is of importance with reference to the cost of depreciation. The depth of the well and the quality of the crude, i.e., heavy or light crude, have an effect upon the lifting cost. The quantity produced per well each year is undoubtedly the most important factor in unit costs. The items of general and administrative expense are not affected by the quality of the crude nor by the depth of the wells.

The lowest cost per barrel is shown for companies operating in a number of fields. Most of the companies having a large annual production operated in a number of fields and they owned a very large part of the best producing oil lands. The average production per company for companies operating in various fields was 2,723,141 barrels in 1918. This average is almost eight times as large as that for the Coalinga field, which shows the second largest average per company. These companies had a large average production per well and show the lowest lifting cost.

The lowest cost for a particular field is shown for the McKittrick field for the entire period. Its cost was 38 cents per barrel, which is 1.5 cents higher than that for the large companies operating in a number of fields. The average annual production for the seven companies in this field was only 129,348 barrels, and the average annual production per well 11,362 barrels. The crude petroleum produced in this field is heavy and the wells are quite deep. The companies in this field show rather high lifting costs but very low general and administrative and depreciation costs. The lifting cost for this field was considerably above the average. This is probably accounted for by the character of the crude, the depth of the wells, and the fact that the average production per well was considerably less than the average for all fields. The general and administrative and depreciation costs were much below the average.

The Whittier-Fullerton field shows the second lowest cost for a particular field. The average production per company of 258,297 barrels was the second largest for a particular field. The average annual production per well was 9,056 barrels as compared with 14,424 for all fields. There is a very wide range in the depth of the wells in this field. The crude petroleum produced in the Whittier-Fullerton field is largely a high grade light refinable crude. The lifting cost was the second lowest for a particular field, the general and administrative cost was lower than the average, depreciation was about the same as the average, while the depletion was lower than for any other field.

The Coalinga field ranks third in lowness of cost for a particular field. The companies included in the costs for this field show the second highest average annual production per well and the highest average production per company. The crude petroleum produced in the Coalinga field is mostly light crude petroleum. There is a wide range in the depths of the wells, some being very shallow and others very deep. This field shows the lowest lifting and general and administrative costs, while the depreciation and depletion costs were comparatively high. The high average production per well and the quality of the crude probably explain the low lifting cost.

The Midway-Sunset field ranked fifth in lowness of cost, but there was a very wide margin between its cost and that shown for the first

[1] See Ch. III for a description of the different fields.

three fields. Depreciation was the only item of cost that is comparatively low. The crude petroleum produced in this field is considerably heavier than that produced in the first two fields. The wells show a wide range in depth, but the annual average production per well is quite high.

The Los Angeles-Salt Lake, Ventura-Newhall, Kern River, and Santa Maria fields follow in the order named. The crude petroleum produced in the Ventura-Newhall field is high grade light crude petroleum, while that produced in the other fields is comparatively heavy. The Ventura-Newhall wells are comparatively shallow, the Los Angeles-Salt Lake wells are about the average, while the Santa Maria wells are quite deep. The Los Angeles-Salt Lake fields show a small annual average production per well, the Ventura-Newhall average was much below that for all fields, while the Santa Maria average was higher than that for any other field. The effect of the large average production in this latter field was offset by the character of the crude and the high depreciation charge.

The Kern River field shows next to the highest cost for any of the fields for which costs are shown. The crude petroleum produced in this field is very heavy, the wells are shallow, and the average annual production per well much smaller than for any other field. The cost of depreciation was relatively lower than any other item. This was probably the result of the shallow wells, but the average annual production per well was so low that the influence of this factor was obscured.

Section 4. Comparison of costs and prices.

As already shown, there are wide variations in the cost of producing crude petroleum by groups and much wider variations in the costs for individual companies. The prices of crude petroleum have no definite relation to the cost of production, but depend rather upon the supply and demand for petroleum products. In the long run, however, unless producers secure a price for their crude petroleum that enables them to operate at a profit, there will be less incentive to drill new wells. Some wells that are already producing will continue to be operated, even though this involves a temporary loss, because there is danger of their being ruined if closed down, while the most unprofitable wells may be abandoned.

As shown elsewhere, the cost of drilling as well as the cost of production increased considerably in the last five or six years, and notwithstanding the price of crude oil has advanced in the meantime, comparatively few wells were drilled by the small companies. Probably the chief reason for the failure of these companies to engage extensively in drilling operations is to be found in the relation between the cost of production and the prices for crude petroleum. A comparison between the cost of production by groups and the prices of certain grades of crude petroleum at the producers' tanks in the oil fields is shown in Table 53.

TABLE 52.—Cost of production, as computed by the Commission, and average annual prices of representative grades of crude petroleum, 1914–June 30, 1919.

Year.	Cost of production per barrel.				Price per barrel.		
	Group 1.	Group 2.	Group 3.	Group 4.	Under 18° gravity.	24° gravity.	27° gravity.
1914	$0.29	$0.29	$0.34	$0.37	$0.27	$0.40	$0.43
1915	.29	.29	.34	.37	.27	.40	.43
1916	.34	.34	.39	.42	.32	.45	.48
1917	.39	.39	.44	.47	.37	.50	.53
1918	.44	.44	.49	.52	.42	.55	.58
1919 (first 6 months)	.49	.49	.54	.57	.47	.60	.63

The prices for the three grades of crude oil are averages based upon the announced prices of the Standard Oil Co. (California). According to this company, during the period under discussion, from 31 per cent to 38 per cent of all crude petroleum produced in California ranged below 18° Baumé. The balance of the crude produced is classed as light crude and for average price purposes the 24° gravity grade is said to be fairly representative of the light grades. The proportion of crude ranging from 24° gravity to 27° gravity has increased in the last few years, and while there was only 4 to 6 cents per barrel difference in the price above the 24° gravity grade its inclusion in the table affords a slightly wider and more satisfactory basis of comparison.

Both average annual prices and the cost of producing crude petroleum increased steadily from 1914 to June 30, 1919, excepting in 1915. By comparison of the prices with the costs for the different groups it is seen that the average cost for groups 1 and 2, which include companies producing more than 250,000 barrels per year, were materially lower than the average price of the lowest priced crude petroleum. The average cost for the companies in group 3, which produced from 50,000 to 250,000 barrels per year, was higher than the average price of the crude petroleum under 18° Baumé and also the 24° Baumé grade in 1914 and 1915, while from 1916 to June 30, 1919, the prices exceeded the costs and the margin between the cost and the average prices for all grades increased steadily. The average costs for companies in group 4 greatly exceeded the average prices for all grades from 1914 through 1917. In 1918 the average cost was slightly higher than the average price of the crude under 18° Baumé, but in 1919 the prices for all grades were higher than the average costs.

As shown in Table 48, the costs of a number of individual companies were greatly in excess of the price of the highest grade of crude petroleum shown. Even when prices are very remunerative for most producers, there are certain companies in the crude petroleum producing business that do not secure a sufficient quantity to make their operations profitable. The business of producing crude petroleum is a speculative one and under normal conditions the highest cost producers may have costs greatly in excess of the price received for their products, while other companies, either during their early operations or when the oil deposits on their properties have been almost exhausted, may also show losses on their operations.

The influence of the low cost companies in groups 1 and 2, which produce a very large proportion of the total production, is so great that quite profitable results are indicated if the comparison be restricted to the average for all groups combined. In the foregoing discussion, however, it has been shown that the groups of producers having a small annual production had high costs, and that they show a loss for a large part of the period. In all the groups it will be noted that, except in 1915, when prices declined, the upward movement in costs was accompanied by a still stronger advance in prices. This had a decided effect in increasing the margins between costs and the average price of the different grades, while the position of the high cost companies was greatly improved.

In 1920 the base price for crude petroleum under 18° Baumé advanced to $1.60 per barrel, the average for the year being $1.49 per barrel. The 24° Baumé grade rose to $1.88, with an average of $1.75 per barrel, while the 27° Baumé grade advanced to $2.15 per barrel, with an average for the year of $2.01 per barrel. Even with somewhat increased costs of production in 1920, the business of producing crude petroleum in California should have been much more profitable than for any other year since 1914.

Section 5. Comparison of Commission and company costs.

The costs of producing crude petroleum presented in the previous sections have been those computed by the Commission. As the result of revisions made by the Commission, these costs differ somewhat from those shown by the records and reports of the various companies. The differences between the company costs and those computed by the Commission are due to the Commission's adjustments of depreciation and depletion, to the elimination from costs of charges for nonproductive and incidental drilling, and of certain other miscellaneous charges which were either capitalized or charged directly to profit and loss or to surplus. The following table shows the Commission's costs, the company's costs, the difference between the two and the items accounting for this difference:

TABLE 32.—*Cost of producing crude petroleum, as computed by the Commission and as reported by the companies, per barrel, by groups, 1919–June 30, 1919.*

Item.	Average per barrel.					
	1919	1918	1917	1916	1915	1914
Group 1:						
Commission cost	$1.240	$1.077	$0.990	$0.849	$0.781	$0.699
Company cost	.275	.207	.207	.207	.207	.207
Difference	.965	.870	.783	.642	.574	.492
Group 2:						
Commission cost	.755	.647	.607	.507	.468	.420
Company cost	.275	.207	.207	.207	.207	.207
Difference	.480	.440	.400	.300	.261	.213
Group 3:						
Commission cost	.577	.497	.468	.392	.362	.325
Company cost	.275	.207	.207	.207	.207	.207
Difference	.302	.290	.261	.185	.155	.118
Group 4:						
Commission cost	.450	.388	.365	.306	.283	.254
Company cost	.275	.207	.207	.207	.207	.207
Difference	.175	.181	.158	.099	.076	.047
Group 5:						
Commission cost	.350	.302	.284	.238	.220	.197
Company cost	.275	.207	.207	.207	.207	.207
Difference	.075	.095	.077	.031	.013	-.010
Group 6:						
Commission cost	.272	.234	.220	.185	.171	.153
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.003	.027	.013	-.022	-.036	-.054
Group 7:						
Commission cost	.211	.182	.171	.143	.133	.119
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.064	-.025	-.036	-.064	-.074	-.088
Group 8:						
Commission cost	.164	.141	.133	.111	.103	.092
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.111	-.066	-.074	-.096	-.104	-.115
Group 9:						
Commission cost	.127	.109	.103	.086	.080	.072
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.148	-.098	-.104	-.121	-.127	-.135
Group 10:						
Commission cost	.099	.085	.080	.067	.062	.056
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.176	-.122	-.127	-.140	-.145	-.151
Group 11:						
Commission cost	.077	.066	.062	.052	.048	.044
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.198	-.141	-.145	-.155	-.159	-.163
Group 12:						
Commission cost	.060	.051	.048	.040	.037	.034
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.215	-.156	-.159	-.167	-.170	-.173
Group 13:						
Commission cost	.047	.040	.037	.031	.029	.026
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.228	-.167	-.170	-.176	-.178	-.181
Group 14:						
Commission cost	.036	.031	.029	.024	.022	.020
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.239	-.176	-.178	-.183	-.185	-.187
Group 15:						
Commission cost	.028	.024	.022	.018	.017	.015
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.247	-.183	-.185	-.189	-.190	-.192
Group 16:						
Commission cost	.021	.018	.017	.014	.013	.012
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.254	-.189	-.190	-.193	-.194	-.195
Group 17:						
Commission cost	.016	.014	.013	.011	.010	.009
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.259	-.193	-.194	-.196	-.197	-.198
Group 18:						
Commission cost	.012	.011	.010	.008	.008	.007
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.263	-.196	-.197	-.199	-.199	-.200
Group 19:						
Commission cost	.009	.008	.008	.006	.006	.005
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.266	-.199	-.199	-.201	-.201	-.202
Group 20:						
Commission cost	.007	.006	.006	.005	.004	.004
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.268	-.201	-.201	-.202	-.203	-.203
Group 21:						
Commission cost	.005	.004	.004	.003	.003	.003
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.270	-.203	-.203	-.204	-.204	-.204
Group 22:						
Commission cost	.003	.003	.003	.002	.002	.002
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.272	-.204	-.204	-.205	-.205	-.205
Group 23:						
Commission cost	.002	.002	.002	.002	.002	.002
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.273	-.205	-.205	-.205	-.205	-.205
Group 24:						
Commission cost	.002	.002	.002	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.273	-.205	-.205	-.206	-.206	-.206
Group 25:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 26:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 27:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 28:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 29:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 30:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 31:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 32:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 33:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 34:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 35:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 36:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 37:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 38:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 39:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 40:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 41:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 42:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 43:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 44:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 45:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 46:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 47:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 48:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 49:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 50:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 51:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 52:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 53:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 54:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 55:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 56:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 57:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 58:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 59:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 60:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 61:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 62:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 63:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 64:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 65:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 66:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 67:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 68:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 69:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 70:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 71:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 72:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 73:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 74:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 75:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 76:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 77:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 78:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 79:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 80:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 81:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 82:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 83:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 84:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 85:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 86:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 87:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 88:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 89:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 90:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 91:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 92:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 93:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 94:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 95:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 96:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 97:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 98:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 99:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206
Group 100:						
Commission cost	.001	.001	.001	.001	.001	.001
Company cost	.275	.207	.207	.207	.207	.207
Difference	-.274	-.206	-.206	-.206	-.206	-.206

TABLE 58.—*Cost of producing crude petroleum, as computed by the Commission and as reported by the companies, per barrel, by groups, 1914 to June 30, 1919.*—Continued.

Item.	14 groups per barrel.					
	1914	1915	1916	1917	1918	1919
Group 4:						
Commission cost	$0.778	$0.803	$0.868	$0.967	$1.191	$1.322
Company cost	.439	.479	.709	.805	1.126	1.000
Difference	.339	.324	.159	.162	.065	.322
All groups:						
Commission cost	.178	.188	.229	.279	.439	.602
Company cost	.209	.213	.304	.385	.670	.727
Difference	.031	.025	.075	.106	.231	.125
Commission's adjustments:						
Depreciation	.012	.012	.020	.028	.049	.067
Depletion	.008	.008	.008	.017	.022	.024
Unproductive drilling	.010	.009	.047	.057	.099	.091
Productive drilling					.012	.022
Other	.009	.011	.009	.009	.051	.007
Total	.013	.011	.031	.134	.231	.125

[1] Deduction.

There are two significant facts disclosed by this table; first, that throughout the period, except in 1915, the costs reported by producers in groups 1 and 2, whose annual production was 250,000 barrels of crude petroleum, were higher than those computed by the Commission, the excess in the last three years being especially large; second, that in the case of the smaller companies in groups 3 and 4 the situation is radically different. Excepting in 1918 and 1919, the Commission costs are higher for group 3, while in the case of companies in group 4, that produced less than 50,000 barrels per year, the Commission's costs in each year of the period are greatly in excess of the reported costs.

As already stated, the difference in costs is largely due to the Commission's adjustment of depreciation and depletion and to drilling charges. In the case of producers in groups 1 and 2, especially, large amounts charged to depreciation and depletion have been disallowed as being in excess of a normal charge. On the other hand, among the smaller producers, particularly those in group 4, charges for depreciation and depletion were in some cases entirely omitted by the companies. In a lesser degree also the same was true of producers in group 3 during the first four years of the period. In the costs computed by the Commission depreciation and depletion were charged uniformly at the rates already explained, and as a consequence the Commission's costs for the smaller companies were materially greater than the reported costs.

Other differences in costs were due to the practice of some companies of charging to the cost of producing oil items properly chargeable either to the investment or profit and loss accounts or belonging to some other branch of the business. Expenditures of this character were omitted from costs as not being properly chargeable to the cost of producing crude oil.

In the data for all groups combined, the details for the principal cost items are given, together with the unit cost for the important

items constituting the difference between the Commission's costs and reported costs. In this connection it will be noted that the largest single item of difference was for depreciation, the costs in reported costs for which was from 2 to more than 6 cents per barrel. It will be noted also that in the first three years of the period the reported cost for depletion was less than that of the Commission. As already indicated, the marked increase in the amounts disallowed for depreciation and depletion in the last three years of the period is due to the abnormally high charges made by some companies.

Section 6. Cost of drilling oil wells.

There was a marked increase in the cost of drilling oil wells in California from 1914–1919. The Commission obtained reports from companies covering from 34 per cent of all the oil wells drilled in 1914 to 67 per cent in 1919. The increase in the cost per well from 1914–1919 was 97 per cent; however, this was partly due to the greater average depth, which increased from 2,047 feet to 2,231 feet. The following table shows the number of wells reported, their average depth, the average cost per foot and per well, and the percentage of increase from 1914–1919.

TABLE 54.—*Average cost of drilling oil wells, as reported to the Commission, 1914–1919.*

Year.	Number.	Average depth.	Cost per foot.	Cost per well.	Increase in cost per well.
	Number.	Feet.			Per cent.
1914	175	2,047	$11.08	$22,675	
1915	194	2,231	11.73	26,178	15
1916	220	2,231	12.28	27,400	21
1917	251	2,231	13.28	29,634	31
1918	284	2,231	14.08	31,414	39
1919	384	2,281	21.84	44,642	97

As shown above, the cost of drilling wells in the California oil fields has increased during recent years. In 1914 reports to the Commission for 175 wells drilled in the different oil fields of California show that the cost of drilling a well ranged from $11,079 to $31,421, the average being $21,575. The depth of these wells ranged from 1,406 feet to 2,985 feet, the average being 2,047 feet. In 1919 the costs of drilling oil wells in California varied from $14,413 for wells averaging 1,030 feet deep to $77,116 for wells that averaged 2,724 feet in depth, while the average cost of 384 wells for which reports were received, which averaged 2,281 feet in depth, amounted to $42,500. This average appears typical for the entire State, for, according to R. P. McLaughlin, State oil and gas supervisor of California, "the amount of money involved in drilling a well varies from $15,000 to $100,000, with the average probably about $40,000."[1] Such costs prevent the smaller producers and companies with small financial resources from engaging extensively in drilling operations. Furthermore, some small producers have had such high costs of production for several years past (see p. 146) that they have lost money

[1] Bulletin American Association of Petroleum Geologists, vol. 4, 1920, p. 377.

business it is not surprising that they have not increased their drilling operations.

The cost of drilling oil wells increases rapidly with the increase in depth; for example, in 1918 wells averaging 2,950 feet deep cost on the average $35,890, while others drilled in the same field with an average depth of 3,300 feet show an average cost of $60,460. The following table shows a comparison of the cost of drilling shallow wells in the Kern River field with that for deep wells in the Whittier-Fullerton field:

TABLE 55.—*Cost of drilling shallow wells in the Kern River field and deep wells in the Whittier-Fullerton field.*

Company.	Kern River field (1917).			Whittier-Fullerton field (1918).		
	Depth per well.	Cost per well.	Cost per foot.	Depth per well.	Cost per well.	Cost per foot.
	Feet.			*Feet.*		
No. 1	1,105	$17,402	$14.41	2,950	$35,890	$27.45
No. 2	900	4,864	5.13	3,000	41,295	13.76
No. 3	800	5,800	7.00	3,125	43,317	14.71
No. 4	625	4,114	6.58	3,964	35,389	11.96

As shown above, the cost of drilling oil wells varies with the depth, but numerous difficulties which are often encountered in the drilling operations or differences in the character of the formations may cause a comparatively shallow well to cost more than one very much deeper. In fields where the characteristics of the strata formation through which the drill must pass have come to be known by previous drilling work the cost of new wells can be approximated within reasonable limits. Where water troubles are numerous, and also when mechanical difficulties occur in drilling, there is a wide range in costs of different wells of the same depth.

A considerable part of the cost of drilling and in the maintenance of oil wells is represented by the expenditures for casing, tubing, rigs, and other materials. In order to determine the importance of this particular factor, prices were obtained for the principal articles used in oil-field operations from several of the largest companies. Average cost of the prices furnished by the companies are shown in Appendix Table 41.

For most of the materials and supplies the highest prices prevailed in 1918. Prices on two sizes of ballers and 25-horsepower gas engines reached their highest level in 1919, while a number of other articles, including bit steel, rig iron, drilling-stem pins, rig timber, steam engines, and band-wheel powers, continued to advance up to January 1, 1920. Casing comprises a large part of the expense in drilling wells. Prices on the different sizes reached their maximum in 1918, following which there was a decline of about 7 to 9.5 per cent. Taking the list of articles as a whole, prices generally were from 60 to more than 100 per cent higher in 1918 and 1919 than those in effect July 1, 1914.

Section 7. Producing Investment.

TOTAL NET INVESTMENT.—The net investment is shown for all companies for which satisfactory information regarding the cost of

producing crude petroleum was secured. In the case of the five large companies, as well as some of the smaller companies, this information was secured directly from their records or was checked with the companies' books by examiners of the Commission; but for the greater number of the smaller companies the investment data were compiled from the balance sheets and supporting statements prepared by the companies and submitted to the Commission, and were not checked with their records.

The information for producing investment as submitted by the companies has been revised to some extent by the Commission. This revision resulted chiefly from the elimination of all appreciation values, the adjustment of charges for depreciation and depletion (see p. 119), the capitalization of items where erroneously charged to costs, the elimination of deferred charges where claimed as investment, and adding back of accrued liabilities, such as accrued income tax, when deducted by the companies from working capital. The following table shows the total investment as shown by the companies' reports, the companies' net investment in producing property, the Commission's revisions, and the Commission's revised net investment in the petroleum-producing business:

TABLE 56.—*Net investment in producing business, as shown by the companies' records and as revised by the Commission, 1916–June 30, 1919.*

Item	1916	1917	1918	1919	1920	1921
Companies' [illegible]						
Investment [illegible]						
Deductions [illegible]						
Net investment in producing						
Less Commission's [illegible]						
Appreciation						
Depreciation						
Depletion						
[illegible]						
Total						
Investment in producing business as revised by Commission						

The entire net investment of the companies for which costs of producing crude petroleum are shown includes their net investment as shown by their records and checked by examiners of the Commission, or as reported to the Commission, and covers their investment in other branches of the petroleum industry and also any investments they may have that are not a part of the petroleum business. The Commission has deducted the amount of their investments in pipe lines, refineries, marketing equipment, in securities of other companies and other outside investments from their entire net investment in order to show their net investment in the producing business. A revision of this net investment in the producing business has been made by the Commission. All appreciation shown by the compa-

nies' records or reported in schedules has been eliminated; adjustments have been made in the depreciation and depletion charges to conform to the Commission's method of treating these items in costs. (See p. 119). And other miscellaneous changes have been made, such as new or incidental drilling, and certain small items eliminated from cost and capitalized. The item new or "incidental drilling" includes the cost of drilling new wells, excepting the value of the physical property, and is largely the labor expense incident to drilling new oil wells, which was charged to the cost of production of crude petroleum by certain companies in accordance with income-tax regulations. Prior to 1918 this expense was capitalized by practically all companies. This latter practice has been followed by the Commission in order to secure uniformity of treatment for all companies and for the different years, and also to secure more accurate costs of production.

The net result of the revisions made by the Commission is a reduction in the net investment in the crude-petroleum producing business. The principal change is due to the adjustment of depreciation and depletion and to the elimination of appreciation, which increased from $40,799,000 on December 31, 1914, to $87,134,000 on June 30, 1919. The difference between the Commission's allowance for depreciation and that charged by the companies, which was added back to the investment, increased from $1,919,000 for 1914 to $15,485,000 for the first half of 1919. During the first four years the Commission's charge for depletion exceeded that made by the companies by from $114,000 in 1917 to $4,067,000 in 1916, while in 1918 and the first half of 1919 the companies' charge exceeded the allowance of the Commission by $6,982,000 and $11,561,000, respectively. The miscellaneous adjustments were small from 1914–1916, while beginning with 1917 they increased from $1,018,000 to $7,445,000 on June 30, 1919. During the later years this item increased the Commission's investment. This large adjustment for the last two and one-half years was almost entirely made up of the expense of new or incidental drilling which the companies had formerly capitalized, but which some companies during the last two and one-half years charged to costs instead of capitalizing them, under the option allowed by the Bureau of Internal Revenue.

The net investment in the oil business, as shown by the records and reports of the companies, increased from $191,435,000 in 1914 to $298,958,000 at the end of 1918. The total for June 30, 1919, was slightly lower, $293,015,000. This increase was partly due to the inclusion of a larger number of companies during the later years. The number of companies for which costs and investments are presented increased from 96 in 1914 to 134 in 1918 and then declined to 112 for June 30, 1919.

The net investment in the crude petroleum producing business, as determined by the Commission from the records of the companies or from reports submitted by them, steadily increased from $149,272,000 on December 31, 1914, to $240,371,000 on June 30, 1919. There was little change during 1915 but large increases in 1916 and 1917. The average net investment in the crude petroleum producing business for all companies for which investment is shown, as determined by the Commission, changed as follows from December 31, 1914–June 30, 1919:

TABLE 51.—Net investment and net investment per company in the producing business, as revised by the Commission, 1914–June 30, 1919.

Year	Companies	Net investment	Net investment per company
1914	107	$150,000,000	$1,402,000
1915	107	152,000,000	1,421,000
1916	107	175,000,000	1,636,000
1917	107	200,000,000	1,869,000
1918	119	240,000,000	2,017,000
1919, June 30	119	241,000,000	2,020,000

The average net investment per company in the crude petroleum producing business as revised by the Commission is much lower than that shown by the companies' records or reports. As already pointed out, this difference is largely due to the elimination of appreciation. The lowest average net investment per company was $1,402,000 for December 31, 1915, and the largest $2,020,000 for June 30, 1919.

NET INVESTMENT BY GROUPS.—The preceding discussion has been confined to the net investment for all companies combined. The following table shows the net investment as revised by the Commission by companies grouped according to the quantity of their annual production. The companies in group 1, which produced 1,000,000 barrels or over throughout the period covered by this report, increased their net investment in the producing business from $111,493,000 in 1914 to $180,180,000 for the first half of 1919. This group owned from 70.7 per cent to 77.5 per cent of the net investment for all companies, although it included only 7 companies out of 107 in 1915 and 11 out of 119 in 1919.

The following table shows the net investment by companies grouped according to the size of their annual production:

TABLE 52.—*Net investment in petroleum business, by groups, 1914–June 30, 1919.*

Year	Group 1.		Group 2.		Group 3.		Group 4.		All groups.	
	Companies	Net investment	Companies	Net investment	Companies	Net investment	Companies	Net investment	Companies	Net investment
1914	7	$111,493,000	22	$23,000,000	22	$11,000,000	56	$4,507,000	107	$150,000,000
1915	7	118,000,000	22	23,000,000	22	11,000,000	56	4,000,000	107	152,000,000
1916	9	140,000,000	22	23,000,000	22	11,000,000	54	4,000,000	107	175,000,000
1917	11	160,000,000	22	23,000,000	22	11,000,000	52	4,000,000	107	200,000,000
1918	11	180,000,000	22	23,000,000	22	11,000,000	64	4,000,000	119	240,000,000
1919, June 30	11	180,180,000	22	23,000,000	22	11,000,000	64	4,000,000	119	241,000,000

As already stated, group 1 included more than 70 per cent of the net investment for each year. Group 2 was second in importance, except in 1917, when group 3 had a larger percentage, and in 1918 when these two groups were practically the same. Companies in group 2 had from 9.2 per cent of the total net investment in 1917, to 13.4 in 1915, while group 3 owned from 7.1 per cent in 1919 to 10.3 per cent in 1917; while companies producing less than 50,000

barrels annually show a variation of from 4.1 per cent in 1914 to 7.6 per cent in 1915.

NET INVESTMENT PER BARREL.—There is a wide range in the net investment for the different groups of companies based on the quantity produced. This investment varies greatly for an individual company for different years, depending upon the fluctuations in the quantity of crude petroleum produced. The amount of the net investment per barrel is an important factor in connection with costs and earnings. In the preceding discussion of the cost of producing crude petroleum it has been shown that the depreciation and depletion costs per barrel were largest for the group having the smallest annual production. The average net investment per barrel for all companies covered for production costs varied from $2.51 in 1914 to $2.93 in 1917. During the period 1917–June 30, 1919, it remained practically constant, the variation being only from $2.91 to $2.93.

The following table shows the average net investment per barrel of crude petroleum produced for all companies from whom satisfactory information was secured for costs for the period 1914–June 30, 1919:

TABLE 69.—*Net investment per barrel based on annual production, by groups, 1914–June 30, 1919.*

Year.	Group 1. Producing from 1,000,000 barrels or over.	Group 2. Producing from 250,000 to 1,000,000 barrels.	Group 3. Producing from 50,000 to 250,000 barrels.	Group 4. Producing less than 50,000 barrels.	All groups.
1914	$2.43	$1.97	$3.71	$7.10	$2.51
1915	2.39	1.90	3.20	8.68	2.72
1916	2.61	2.15	3.61	7.86	2.83
1917	2.77	2.25	4.26	10.97	2.93
1918	2.77	2.25	4.26	10.97	2.93
1919[1]	2.79	2.55	3.90	10.53	2.89

[1] First half of 1919 on annual basis.

The companies in group 2, which produce from 250,000 to 1,000,000 barrels annually, show the smallest investment per barrel for each year. The smallest amount during the period was $1.90 in 1915 and the largest $2.55 for the first half of 1919. Group 1 shows the second lowest average. The average net investment per barrel for this group increased from $2.43 in 1914 to $2.79 for the first half of 1919. In 1917 and 1918 the net investment per barrel was exactly the same, $2.77, while for the first half of 1919 it was $2.79. Groups 3 and 4 show much higher averages. The lowest net investment per barrel for group 3 was $3.20 in 1915 and the highest $4.26 in 1918, while that for group 4 varied from $7.10 in 1914 to $10.97 in 1917.

Section 8. Earnings from production.

METHOD OF COMPUTING EARNINGS.—The earnings of crude oil producing companies generally are derived mainly from the sale of crude petroleum, but in addition thereto there are certain miscellaneous sources of revenue possessed by some of the companies,

This additional revenue is largely from the sales of casing-head gasoline and natural gas, with smaller items of income mainly due to royalties and rents received.

As the earnings reported by the different companies were not all on the same basis, it became necessary to put them on a comparable basis. This was done by taking the operating earnings reported by the various companies and adding back thereto such items as the Commission disallowed in costs as being more properly items which should be capitalized or charged to profit and loss or surplus. These were composed largely of such items as nonproductive drilling, lease rentals, interest, abandoned property, incidental drilling, and prospecting.

To the operating earnings thus obtained was added the net "Other income." This was obtained by deducting from "Other income" items charged direct to profit and loss by the Commission. The principal items comprising "Other income" have already been mentioned. The principal profit and loss deductions were for nonproductive drilling, lease rentals paid, and interest on short-term notes. Bond interest, interest on long-term notes, and interest on payables due subsidiaries were not deducted, as such obligations were treated as part of the company's investment. The company's total earnings before the adjustment of the depreciation and depletion charged by the company was thus obtained.

Depreciation was adjusted to 5 per cent on wells and equipment and 10 per cent on other operating property. Depletion was adjusted to 5 per cent on lands and leases, excluding nonproducing property.[1] The adjustment thus obtained was then added to or subtracted from the company's total earnings as described above and the company's total earnings adjusted for depreciation and depletion thus obtained.

As already stated, there were five large companies which were engaged in all branches of the petroleum business. Three of these companies furnished statements showing earnings by departments. For the other two companies the Commission has computed earnings for the producing department on the basis of the market price for the crude petroleum at the well.

EARNINGS BY GROUPS.—The same grouping of companies into four groups as in the discussion of cost of production is followed and needs no further explanation. (See p. 121.) The earnings by groups have been computed in accordance with the method already outlined. The only groups showing losses are those including companies having a small annual production, especially group 4, which produced only about 2 per cent of the total production of the State.

[1] For further description of the basis for depreciation and depletion allowed, see p. 119.

The following table shows the earnings obtained by groups for the period 1914–June 30, 1919.

TABLE 60.—*Earnings in producing business, as determined by the Commission, by groups, 1914–June 30, 1919.*

Year.	Group 1: Producing [illegible]	Group 2: Producing [illegible]	Group 3: Producing [illegible]	Group 4: Producing [illegible]	All groups.
1914	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1915	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1916	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1917	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1918	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1919[1]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1] Loss.

[2] First 6 months.

The above table shows that the earnings increased each year, except in 1915, which was a less profitable year for the companies than 1914, due to an overproduction of crude petroleum and a consequent decline in its market price. The increased earnings in subsequent years is partly accounted for by the larger number of companies represented but mainly by improved market conditions.

EARNINGS FOR INTEGRATED COMPANIES.—The resolution directing this inquiry specifically requests information concerning the earnings of certain companies. There are five companies that are engaged in all branches of the petroleum business on the Pacific coast. These five companies are the Associated Oil Co., the General Petroleum Corporation, the Shell Co. of California, the Standard Oil Co. (California), and the Union Oil Co. of California. Three of these companies furnished departmental earnings for their crude petroleum producing business. These earnings have been revised by making certain adjustments, while crude oil departmental earnings for production for the other two companies were computed by the Commission on the basis of their crude oil sales at the average market price for the quality produced. Earnings are shown for three companies in 1914 and 1915, four in 1916, and five for the remainder of the period. The three companies for which departmental earnings are shown for the whole period are the Associated Oil Co., the Standard Oil Co. (California), and the Union Oil Co. of California. The earnings of the five companies computed on the above basis constituted from 61 to 65 per cent the total earnings for all companies for which earnings are presented.

These departmental earnings are shown in the following table:

TABLE 61.—*Earnings of the five large companies in the producing business, as determined by the Commission, 1914–June 30, 1919.*

Year.	Number of companies	Earnings.	Year.	Number of companies	Earnings.
1914	3	$5,039,741	1917	5	$20,980,313
1915	3	2,947,889	1918	5	32,402,720
1916	4	11,005,291	1919[1]	5	26,289,965

[1] First 6 months.

The earnings on crude petroleum production for the three companies were 44.3 per cent of the total for 1914 and 1915. In 1916 the earnings for the Shell Co. of California are also included, and the four companies had 54.4 per cent of the total. As already stated, the earnings of the five companies from 1917 to June 30, 1919, included from 61 to 65 per cent of the total.

EARNINGS PER BARREL.—The total earnings shown in Table 60 appear to be large, as they run into millions of dollars, in one year, 1918, attaining over $55,000,000. In order to show the meaning of these figures it is necessary to reduce them to a common unit, namely, the barrel of 42 gallons, which is the unit used in merchandising crude petroleum. The grouping used is the same as that shown in former tables. The margin per barrel for all companies varied from $0.114 in 1915 to $0.789 for the first half of 1919, while that for the companies having a large production was slightly higher, ranging from $0.129 to $0.849.

The table below shows the earnings per barrel, by groups, for the period 1914–June 30, 1919.

TABLE 62.—*Earnings per barrel of 42 gallons, by groups, 1914–June 30, 1919.*

Year.	Group 1: Producing 1,000,000 barrels or over.	Group 2: Producing 250,000–1,000,000 barrels.	Group 3: Producing 50,000–250,000 barrels.	Group 4: Producing 25,000–50,000 barrels.	All groups.
1914	$0.126	$0.171	[1] $0.034	[1] $0.328	$0.171
1915	.129	.161	[1] .220	[1] .219	.114
1916	.264	.305	.108	[1] .382	.189
1917	.357	.329	.341	[1] .133	.194
1918	.719	.628	.509	[1] .039	.379
1919[2]	.849	.679	.439	.082	.789

[1] Loss. [2] First 6 months.

Group 1 shows the highest earnings of any group, except group 2 in 1915, ranging from $0.129 in 1915 to $0.849 for the first six months of 1919. Group 2 shows lower earnings than group 1 in every year except 1915, but higher earnings than group 3, varying from $0.161 in 1915 to $0.628 for the first six months of 1919.

Group 3 shows a loss in the first two years and a lower profit per barrel in the other years than groups 1 and 2, ranging from a loss of $0.034 in 1914 to a profit of $0.509 in 1918. Group 4 shows a loss for 1914 to 1918 ranging from $0.382 in 1916 to $0.039 in 1918, while the first six months for 1919 shows the only profit for the period, $0.082. The companies in this group produced less than 50,000 barrels a year.

RATE OF EARNINGS.—The real significance of earnings is recognized only as they are reflected in the return on the net investment. The rate of earnings has been computed on the mean investment, which is obtained by taking one-half of the sum of the net investment at the beginning and end of the year, except for 1914 and 1919, when the investment for December 31, 1914, and June 30, 1919, respectively, has been used.

The rate of earnings as shown in the following table for all companies as computed by the Commission ranged from 4.4 per cent in

1918 to 26.7 per cent for the first half of 1919. The earnings for the producers having an annual production of 1,000,000 barrels or over annually ranged from 5.1 per cent to 29.7 per cent, while those producing less than 50,000 barrels per year show a loss for every year excepting the first half of 1919, when they earned only seven-tenths of 1 per cent. The rate of earnings of companies engaged in producing crude petroleum, grouped according to the quantity of their annual production, is shown in the following table:

TABLE 63.—*Rate of earnings in producing business, as computed by the Commission, by groups, 1914–June 30, 1919.*

Year.	Group 1: Producing 1,000,000 barrels or over.	Group 2: Producing 250,000 to 1,000,000 barrels.	Group 3: Producing 50,000 to 250,000 barrels.	Group 4: Producing under 50,000 barrels.	All groups.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
1914	8.9	10.6	10.5	[1] 4.0	7.8
1915	5.1	9.5	1.9	[1] 4.2	4.4
1916	15.1	12.0	3.0	[1] 4.3	12.4
1917	22.4	18.2	5.9	[1] 1.7	18.8
1918	27.5	23.1	11.4	[1] 1.4	24.4
1919 [2]	29.7	27.9	12.3	.7	26.7

[1] Loss. [2] First 6 months, annual basis.

The above table shows that in the years 1914 and 1915, during which the prices of crude petroleum were low as a result of an overproduction, that only groups 1 and 2, which include the larger companies, made any profit, while beginning with 1916 group 3 began to show a profit.

The five large companies, i. e., Associated Oil Co., the General Petroleum Corporation, the Shell Co. of California, the Standard Oil Co. (California), and the Union Oil Co. of California show a rate on their combined earnings for their crude-petroleum producing business ranging from 22.4 per cent in 1917 to 32.2 per cent for the first half of 1919. In 1914 and 1915 the rate for the combined earnings of the Associated Oil Co., the Standard Oil Co. (California), and the Union Oil Co. of California was 8.2 and 4.8 per cent, respectively, while in 1916, together with the Shell Co. of California, they earned 14.4 per cent.

The rate of earnings for the five large companies enumerated above are shown in the following table:

TABLE 64.—*Rate of earnings in producing business, as computed by the Commission, for five large companies, 1914–June 30, 1919.*

Year.	Number of companies.	Rate of earnings.	Year.	Number of companies.	Rate of earnings.
		Per cent.			*Per cent.*
1914	3	8.2	1917	5	22.4
1915	3	4.8	1918	5	29.7
1916	4	14.4	1919 [1]	5	32.2

[1] First 6 months, actual basis.

The rate of earnings for the above companies was slightly less than the average for group 1 for the first three years, while for the last two years of this period their rate was higher.

RATE OF EARNINGS BY PROFIT GROUPS.—The rate of earnings by production groups has already been shown, but the rate of earnings by profit groups is also of great interest. For this purpose the companies have been grouped into those losing money, and then into groups with specified rates of profit, from one earning less than 10 per cent to a final group of those earning 50 per cent and over. The speculative character of the crude-petroleum business is shown by the very wide range in the earnings. In years when gushers are discovered some companies show very high earnings, while in each year a large number of companies lose money. From 1914 to June 30, 1919, from 17 to 56 per cent of all the companies for which information was secured show a loss while from 18 to 57 per cent of the companies earned in excess of 10 per cent. In every year some companies earned very large profits. A detailed analysis of the earnings for all companies covered by this report is shown in Appendix Table 42, while a summary analysis is given in Table 65 for 1914, 1918, and the combined results for the period 1914–June 30, 1919.

TABLE 65.—*Rate of earnings in producing business, by profit groups.*

Profit group.	Companies.		Proportion of total.			Rate of earning by profit groups.
	No.	Per cent.	Net production.	Net investment.	Earnings.	
1914.			*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Losing money	47	48.9	17.9	42.9	[1] 10.0	[1] 1.8
Earnings—						
Less than 10 per cent	21	20.8	27.1	31.7	13.9	4.0
10 to 20 per cent	6	5.4	5.6	4.2	7.7	14.2
20 to 30 per cent	5	5.3	42.5	20.3	21.1	39.0
30 to 40 per cent	2	2.1	.7	.1	.6	23.6
40 to 50 per cent	2	2.1	1.8	.5	2.9	46.6
50 per cent and over	2	2.1	5.4	.3	6.8	108.8
Total	96	100.0	100.0	100.0	100.0	7.0
1918.						
Losing money	29	21.9	1.6	4.9	1.2	[1] 1.6
Earnings—						
Less than 10 per cent	34	25.4	5.3	19.4	1.8	2.7
10 to 20 per cent	25	18.6	10.5	20.4	11.0	14.2
20 to 30 per cent	19	14.2	22.4	22.9	21.0	32.1
30 to 40 per cent	9	6.9	7.1	6.9	6.6	30.9
40 to 50 per cent	6	4.5	12.9	6.6	12.9	47.7
50 per cent and over	14	10.4	30.9	18.9	36.5	85.0
Total	134	102.0	100.0	100.0	100.0	26.1
1914–June 30, 1919.[2]						
Losing money	62	53.0	8.9	18.9	[1] 3.5	[1] 2.0
Earnings—						
Less than 10 per cent	31	26.9	15.0	22.4	5.4	5.1
10 to 20 per cent	17	14.6	20.9	23.4	23.6	14.5
20 to 30 per cent	9	7.5	21.7	13.2	22.4	26.9
30 to 40 per cent	4	4.8	9.5	6.9	15.0	32.7
40 to 50 per cent	3	2.3	3.7	1.6	5.1	47.6
50 per cent and over	8	7.0	18.3	10.5	34.0	61.2
Total	117	100.0	100.0	100.0	100.0	10.1

[1] Loss.

[2] First 6 months of 1919 placed on annual basis by taking half of the investment.

The years 1914 and 1915 were years of low earnings. There was an overproduction in 1914 and the early part of 1915 and prices of crude petroleum were low. Beginning with 1916 earnings began to increase so that the average rate of earnings for all companies covered by the report had increased from 7.6 in 1914 to 24.4 per cent in 1918.

In 1914 out of 96 companies, 47, or almost one-half of those for which earnings are shown, had an average loss of 1.8 per cent on the net investment. These 47 companies produced 17.9 per cent of the net production of crude petroleum and owned 42.9 per cent of the net investment. In the prosperous year of 1918 there were still 28 companies, or almost 21 per cent of the total, that showed an average loss of 4.4 per cent. These 28 companies contributed only 1.6 per cent of the net production and had only 4.8 per cent of the net investment. For the entire period 1914–June 30, 1919, there was an average of 43 companies out of 117, or 36.6 per cent, that show an average loss of 2.6 per cent. These companies produced only 9 per cent of the net production and owned a little less than 20 per cent of the net investment.

In 1914 there were 29 companies, or about 30 per cent, that earned less than 10 per cent on their net investment. Their average rate of earnings was only 4.5 per cent. This group produced about 27 per cent of the net production and owned 31.7 per cent of the net investment. The depressed condition of the crude-petroleum producing business in California at that time was strikingly shown when the results of the first two groups were combined. In that year 79 per cent of the number of companies covered by this report either lost money or earned less than 10 per cent, and they supplied 45 per cent of the net production covered by the above tabulation, and represented almost 75 per cent of the net investment. In 1918, 34 companies, or 25.4 per cent of the number shown, earned less than 10 per cent on their net investment. These companies contributed only 5.8 per cent of the net production covered and included 16.4 per cent of the net investment. Even in this prosperous year approximately 46 per cent of the companies showed either a loss or earned less than 10 per cent. These two groups, however, produced only 7.4 per cent of the net production and owned a little over 21 per cent of the net investment.

In 1914 five companies, producing 42.5 per cent of the total quantity included in the above tabulation and having 20.3 per cent of the net investment, earned from 20 to 30 per cent. In 1918 there were 19 companies that produced 22.4 per cent of the production covered and owned almost 23 per cent of the net investment that earned between 20 and 30 per cent; while for the whole period there was an average of 9 companies representing 21.7 per cent of the net production and 13.2 per cent of the net investment that earned from 20 to 30 per cent.

There were only 6 companies out of 96 in 1914 that earned in excess of 30 per cent; these companies produced only about 7 per cent of the net production shown, and represented only nine-tenths of 1 per cent of the net investment. Two of these companies show the highest average earnings for the entire period, namely, almost 231 per cent. In 1918 there were 28 companies, or approximately 21 per cent of the total number shown that earned in excess of 30 per cent.

These companies contributed a very substantial proportion of the net production, namely, almost 51 per cent, and they represented 29.5 per cent of the net investment. There were 6 companies in this year that earned from 40 to 50 per cent, with an average of 47.7 per cent, and 14 companies that earned in excess of 50 per cent, with an average of 55.8 per cent. For the entire period there was an average of 17 companies, or about 14 per cent of the total average number, that earned in excess of 30 per cent. They represented 31.5 per cent of the net production and about 21 per cent of the net investment.

In the early part of the period, particularly in 1914 and 1915, there were a large number of companies among those covered by this report, representing a large proportion of the net investment in the crude petroleum producing business, that were not receiving an adequate return on the investment. While the cost of producing crude petroleum was low, the price received for it was not sufficient to enable many producers to make any profit. Beginning in 1918 and continuing through 1919 the cost of production increased greatly, but the prices of crude petroleum increased at a more rapid rate, until some profit was realized on over 95 per cent of the net investment for all the companies included in the above tables. In a highly speculative mining business, such as the production of crude petroleum, there will usually be some producers that show a very high rate of earnings, while a considerable percentage show a loss. Normally those showing a loss for a given year include companies just developing their properties, and companies whose properties have been operated until only very small quantities can be produced, or companies that operate in unprofitable pools or in relatively unproductive portions of good oil pools.

COMPARISON OF COSTS, NET EARNINGS, AND INVESTMENT BY FIELDS.—The costs by companies and by fields have been presented in section 3, and investment and net earnings by different groupings have been discussed in the preceding paragraphs of this section. Appendix Table 43 shows the cost, investment, and net earnings per barrel, the rate of earnings and the average production per well by companies for 1918. For both the above-mentioned table and Table 66 below the average production per well was obtained by dividing the gross production by one-half of the sum of the number of wells being operated at the beginning and end of the year; the average investment per barrel was obtained by dividing the investment by the net production, and the rate of net earnings was secured by dividing the total amount of net earnings by the total investment. This table shows a very wide variation in each item for the different companies; the average production per well for 1918 varied from only 447 to 260,143 barrels, the costs varied from $0.14 to $5.36 per barrel, the investment per barrel from $0.46 to $80.41, the net earnings per barrel from a loss of $4.12 to a profit of $1.36, and the profit or loss on the net investment from a loss of 79.4 per cent to a profit of 129.5 per cent. As a rule the companies showing a loss had a small average production per well and a high average investment per barrel. The most profitable companies generally had a large average production per well and a low average investment per barrel. However, for both the unprofitable companies and those showing very large net earnings there were wide variations.

The following table shows the information discussed above grouped according to fields:

TABLE 66.—*Cost, net earnings, and investment per barrel and rate of net earnings on investment for petroleum producers in California, by fields, 1918.*

Field.	Number of companies.	Mean number of wells.	Annual gross production per well.	Average cost per barrel.	Net earnings per barrel.	Average investment per barrel.	Rate of earnings.
			Barrels.				*Per cent.*
Coalinga	20	134.0	17,186	$0.441	$0.724	$2.69	18.9
Kern River	14	243.5	9,862	.736	.422	3.00	13.7
Los Angeles and Salt Lake	4	132.5	4,251	.743	.195	2.45	7.7
Midway-Sunset	89	402.6	14,281	.422	.468	4.25	11.0
McKittrick	7	90.0	11,262	.280	.622	2.05	40.1
Santa Maria	7	98.9	17,240	.702	.309	4.41	7.0
Ventura-Newhall	9	112.6	5,154	.843	.747	5.61	9.3
Whittier-Fullerton	9	232.5	9,935	.525	.915	2.58	42.1
Nonoperable	20	3,457.0	14,686	.982	.708	2.87	30.7
Total	134	5,031.6	14,381	.438	.747	3.07	34.4

The McKittrick field shows the highest rate of earnings, the second highest net earnings per barrel, the lowest cost for a particular field, and the lowest average investment per barrel; although its production per well was below the average for all fields. The low cost of production in this field was partly due to the low investment per barrel, which affected the charges for depreciation and depletion. This low cost per barrel is reflected in comparatively high earnings per barrel and together with the small investment gives a high rate of earnings.

The Whittier-Fullerton field shows the second lowest cost, the largest earnings per barrel, the second highest rate of earnings, and the third lowest investment per barrel for a particular field. The high net earnings per barrel were due to a comparatively low cost and to the fact that a large proportion of the crude petroleum produced in this field is of high quality and commands a comparatively high price. These high net earnings, and the fairly low investment per barrel give a high rate of earnings.

The cost of production for the Coalinga field was only slightly higher than for the Whittier-Fullerton field. Its net earnings per barrel and rate of earnings were comparatively high. The production per well was much above the average but the investment per barrel was considerably higher than the average. The comparatively high net earnings per barrel and rate of earnings were largely due to the comparatively low cost. While the net earnings per barrel were high, the larger average investment per barrel gave this field a considerably lower rate of earnings than is shown for either the McKittrick or Whittier-Fullerton fields.

The Ventura-Newhall field shows a comparatively high cost of production; this was largely the result of its comparatively low average production and its extremely high investment per barrel. On the other hand, the earnings per barrel were high due to the higher prices paid for the high quality crude produced in this field, but the large investment per barrel gave a comparatively low rate of return.

While the Midway-Sunset field had a high average production per well, its comparatively high investment per barrel, through

depreciation and depletion charges, gave a high cost of production. The net earnings per barrel were quite large, but the high average investment per barrel gave this field a rate of earnings much below the average.

The Kern River and Los Angeles-Salt Lake fields had the smallest average production per well and the highest costs. The investment per barrel was about the average for the Kern River and slightly higher than the average for the Los Angeles-Salt Lake field. The net earnings per barrel were very low for the Los Angeles-Salt Lake field and much below the average for the Kern River field. This was due to the high costs and the character of the crude produced in these fields, which is heavy in the Kern River field and very heavy in the Los Angeles-Salt Lake field. The fairly low investment for the Kern River field gave it a higher rate than its earnings per barrel would indicate, while the rate for the Los Angeles-Salt Lake field was low.

The Santa Maria field shows the largest production per well, but had high costs on account of the large investment per barrel. The earnings per barrel were quite low due to the high cost and heavy character of the crude which gave it a low market price, while the high investment per barrel and comparatively low earnings per barrel were reflected in a low rate of earnings.

The nonseparable group, which includes the results for companies operating in two or more fields, shows a large average production per well, lower costs than for any particular field, low average investment per barrel, high earnings per barrel and a high rate of earnings on the net investment. As already stated, the companies included in this group own or lease the best oil lands in the State. The net earnings per barrel were slightly higher than the average for all companies, due to their lower costs, while the low average investment per barrel was reflected in a high rate of earnings on net investment.

CHAPTER VII.

TRANSPORTATION OF CRUDE PETROLEUM.

Section 1. Importance of transportation facilities.

The oil fields of California are mostly located far from the large centers of consumption of petroleum products, so that their development depends upon convenient, efficient, and cheap methods of transporting the crude petroleum to refining centers, which are generally located near centers of consumption. Three methods of transporting crude petroleum have been utilized in California, viz, (1) by water in barges and tank steamers, (2) by railroads in containers such as barrels or other receptacles or tank cars, and (3) by pipe lines. The first method—transportation by water—is economical, but it is limited largely to coastwise and overseas movements of crude. In some cases it is used to supplement pipe-line transportation. Even when the fields are near the coast the crude petroleum is first gathered by pipe lines. The second method of transporting crude petroleum—by railroad—is comparatively expensive. Crude petroleum is a low-priced commodity, i. e., it has a comparatively low value per unit of weight, hence it is charged a commodity rate, but fire risks and the expediency of using special cars for bulk shipment combine to make this method of transportation comparatively expensive. The transportation of crude petroleum by pipe lines was already the established practice in the industry when the production of petroleum in California began to attract attention. An extensive development and utilization of pipe lines in the Appalachian and other eastern fields existed in the early eighties, and since some of the original oil operators in California came from the eastern fields, similar methods were adopted for transporting the crude from the wells to the railroads, to the refineries, and to tidewater. The distribution of refined products and residuum from the refineries to the various consuming centers presents an entirely different problem, the solution of which is found in the utilization of such facilities of distribution as tank steamers, tank cars, and motor vehicles.

The scarcity of good rivers and harbors, the geographic location, and sparse population of the large oil-producing areas have rendered the use of pipe lines imperative in the State of California. Whenever an oil pool has been brought in and the development has shown that it was a producing area of importance, the large oil companies have provided pipe-line facilities to transport the crude to centers of consumption. while at the present time all of the important oil fields and oil pools are provided with adequate pipe-line facilities, the policy of the large companies in laying new lines has been a conservative one, and in California, as in the Mid-Continent field, pipe-line construction has followed the development of crude-oil production.[1]

[1] Pipe-Line Transportation of Petroleum, Federal Trade Commission, pp. 6 and 47.

Section 2. Development of pipe lines.

The development of petroleum production in Pico Canyon, Ventura County field, and the rough and rugged character of the country led to the construction of a 2-inch pipe line in the early eighties to transport the crude to the neighboring town of Newhall, where a refinery was constructed. This pipe line belonged to the Pacific Coast Oil Co. About the same time the Mission Transfer Co. built a 4-inch pipe-line from Santa Paula to the coast at Ventura, with smaller lines from Santa Paula to the producing fields. The Western Union Oil Co. in the Santa Maria field and the Union Oil Co. of California and the Puente Oil Co. in the Whittier-Fullerton field also availed themselves of this form of transportation for local purposes. The rapid development in the San Joaquin Valley in the Kern River and the Coalinga fields in the opening years of the twentieth century led to a larger utilization of pipe lines, because the refineries at that time (1900–1905) were centered around San Francisco Bay and the city of Los Angeles rather than in the oil fields. It was under such circumstances that the Pacific Coast Oil Co., then controlled by the Standard Oil Co. (New Jersey), in 1902–3 constructed an 8-inch pipe line from the Kern River field to Richmond on San Francisco Bay, with a branch line tapping the Coalinga field. The original line was 280 miles in length while the distance from the Coalinga field to the junction with the main trunk line was 29 miles.

In 1903–4 a 6-inch line (known as the Matson line), 110 miles in length, was constructed from the Coalinga field to Monterey on the seaboard. Before this the numerous small producers of the San Joaquin Valley had been entirely dependent upon the pipe line of the Pacific Coast Oil Co. and upon railroads for the transportation of their production to the markets on the coast. The Matson line was sold to the Associated Oil Co. in 1905.

Other developments at this time included the Santa Maria field, where a 6-inch pipe line, 32 miles in length, was constructed by the Pacific Coast Oil Co. in 1905. The Union Oil Co. of California had been operating in this field for some time and constructed another pipe line about the same time, while a small local company built a third short pipe line extending to the coast. The Associated Oil Co. also has a pipe line from the same field extending to the coast at Gaviota.

The next important development was in 1907–8, when an 8-inch pipe line was built from the Kern River field to Port Costa, on San Francisco Bay, by the Associated Pipe Line Co., owned jointly by the Associated Oil Co. and the Southern Pacific Co. This pipe line was constructed with "rifled" pipe, which subsequently was replaced by ordinary pipe. The rapid development of the Midway-Sunset field at this time caused the Standard Oil Co. (California) to build a branch line from that field to their 8-inch line from the Kern River field, while the Associated Pipe Line Co. did the same thing by way of the Coalinga and McKittrick fields.

In 1909 the Union Oil Co. of California, in conjunction with the Independent Oil Producers Agency, formed the Producers' Transportation Co., and constructed an 8-inch pipe line from the San Joaquin Valley across the mountains to tidewater at Port San Luis. This line, with branches to all the fields in the San Joaquin Valley, has an aggregate length of about 220 miles for the system. The pro-

lific production in Midway-Sunset field in 1910, when Lakeview Well No. 1 came in, immediately created a demand for more transportation facilities, and the Standard Oil Co. (California) doubled its entire line to Richmond, and subsequently the Union Oil Co. of California did likewise to Port San Luis.

During 1911 the Standard Oil Co. (California) built a pipe line in the southern district from the Whittier-Fullerton field to the coast at El Segundo, while the Union Oil Co. of California extended its pipe lines to the Whittier-Fullerton and adjacent fields. The Amalgamated Oil Co., a subsidiary of the Associated Oil Co., also had a pipe line 10 miles in length connecting the Salt Lake field with its refinery at Los Angeles.

In 1912–13 the General Pipe Line Co. of California, which is owned by the General Petroleum Corporation, constructed an 8-inch pipe line running south from the Midway-Sunset field across the Tehachapi Range to the refinery of the latter company at Vernon, with a branch from Lebec to Mojave on the Santa Fe Railroad, the total length of these lines being 212 miles.

In 1915 the Valley Pipe Line Co. controlled by the Shell interests constructed an 8-inch pipe line from the Coalinga field to Martinez, on San Francisco Bay, a distance of 170 miles. At the beginning of 1918 this pipe-line property was taken over by the Shell Co. of California, and the Valley Pipe Line Co. was dissolved.

In addition to the larger developments outlined above there have been many minor extensions, adjustments, and removals of pipe lines during the past decade, e. g., the Standard Oil Co. (California) has recently removed a pipe line which it had in the Santa Maria field.

Section 3. Principal pipe-line systems.

IMPORTANT SYSTEMS.—There are five large pipe-line systems in California which transport the great bulk of the crude petroleum moved by pipe lines. These systems are owned or controlled by the Standard Oil Co. (California), the Union Oil Co. of California, the Associated Oil Co., and the Southern Pacific Co. jointly, the Shell Co. of California, and the General Petroleum Corporation. The Standard Oil Co. (California) owns and operates its own lines, the Union Oil Co. of California owns and operates its own lines, while it also owns and operates the Producers' Transportation Co., the Associated Oil Co., and Southern Pacific Co. control jointly the Associated Pipe Line Co., the Shell Co. of California owns and operates the pipe lines which were built by the Valley Pipe Line Co., while the General Petroleum Corporation controls through stock ownership the pipe lines of the General Pipe Line Co. of California. The main trunk lines and their important branches are shown on Map 1, opposite page 46.

As shown on this map, three pipe-line systems connect the oil fields of the San Joaquin Valley with the refineries situated on San Francisco Bay. These pipe lines are operated by the Standard Oil Co. (California), the Associated Pipe Line Co., and the Shell Co. of California, respectively. Three other lines extend from these same fields to the coast at Monterey, Port San Luis, and San Pedro. These pipe lines are owned by the Associated Oil Co., the Union Oil Co. of California, and the General Pipe Line Co. of California, respectively. Thus, the San Joaquin Valley fields may be considered as the base

of operations for six distinct trunk pipe lines, with an aggregate daily capacity of 250,000 barrels. This indicates a capacity of at least 7,500,000 barrels per month, or about 90,000,000 barrels per annum, which exceeds the greatest production that has been obtained up to the present time from the San Joaquin Valley fields by about 13,000,000 barrels.

In the Santa Maria field there are three short trunk pipe lines operated by the Associated Oil Co., the Union Oil Co. of California, and by a small local company, respectively. The pipe line of the Standard Oil Co. (California), which was constructed in 1905, has been removed recently. This field is evidently well supplied with pipe-line facilities. In the Ventura fields the Union Oil Co. of California and the Standard Oil Co. (California) have pipe lines terminating at the coast at Ventura, which extend to the many small pools found throughout this field. These lines are usually smaller than the standard sizes in use elsewhere, but the pipe-line facilities are adequate to handle the current production.

In the southern district the Standard Oil Co. (California) and the Union Oil Co. of California operate pipe lines extensively, while the Associated Oil Co. and the General Pipe Line Co. of California are also represented. In addition to these lines several shorter lines are operated by smaller companies. The pipe lines in this section of the country are comparatively short, as the production of crude petroleum is secured from pools adjacent to the coast. The country is generally level, and hence the construction and operation of the various pipe lines is comparatively easy.

CAPACITY AND MILEAGE.—The trunk pipe-line systems owned and operated by the five large interests include the bulk of the pipe-line mileage and pipe-line capacity in the State of California. The mileage for the principal sizes of pipe and the capacity are shown for each company as of December 31, 1919, in the following table:

TABLE 67.—*Trunk pipe-line mileage, capacity, and principal sizes of pipe owned or controlled by five large companies, Dec. 31, 1919.*

Company.	Trunk line mileage.				Daily capacity.
	8-inch.	6-inch.	Other sizes.	Total miles.	
					Barrels.
Standard Oil Co. (California)	687	53	133	813	153,650
General Pipe Line Co. of California[1]	212			212	20,000
Shell Co. of California	170			170	26,000
Associated Oil Co.	519	104		723	103,650
Union Oil Co. of California	321	68	15	401	96,000
Total	2,019	229	191	2,439	399,300

[1] Owned by the General Petroleum Corporation.

The total trunk pipe-line mileage controlled by the five large companies aggregate 2,439 miles, of which 2,019 miles are 8-inch pipe, 229 miles are 6-inch pipe, and the remaining mileage includes miscellaneous sizes, such as 3, 4, 10, and 12 inch pipe. The small pipe might be more properly regarded as gathering lines in accordance with the practice in the Mid-Continent and Eastern fields. The rated capacity reported by the several companies is sufficient to transport

138,709,000 barrels of crude petroleum per annum. This quantity is considerably in excess of the present annual production for the State, which in 1920 was 105,721,000 barrels.

Section 4. Operation and construction cost.

PROBLEMS PECULIAR TO CALIFORNIA.—The principles of pipe-line construction are treated exhaustively in the report on Pipe-Line Transportation of Petroleum, published by the Commission in 1916. However, in California it was found that the methods which had been successful in the Mid-Continent and Eastern fields did not always give satisfactory results. This was largely due to the difference in the character and quality of the crude petroleum produced in California as compared with that produced in Eastern fields. The transportation difficulties in California were confined to the heavier grades of crude, and particularly to those produced in the Kern River field and Casmalia pool of the Santa Maria field. The crude petroleum produced in these two fields is heavy and very viscous (sticky); hence it does not flow readily through pipe lines, especially in cold weather. In order to maintain the efficiency of any line used to transport these crudes, it was found necessary to modify the construction of the pipe-line system and the method of pumping the crude petroleum, especially in two particulars: (1) Equipment was installed at pumping stations to heat the crude petroleum to decrease its viscosity, and (2) the distance between pumping stations was greatly reduced.

METHOD OF HEATING.—Heating crude petroleum in order to transport it successfully through pipe lines is not necessary in any of the oil fields east of the Rocky Mountains, but is necessary in order to transport the heavier and more viscous crudes in California efficiently. The equipment at each pumping station is devised to increase the temperature of the crude from the normal temperature of from 60° or 80° to 150° or 160° F. Between stations the crude oil cools perceptibly and must be heated again. A minimum temperature of 100° F. is sought for the oil in transit, to maintain which the pumping stations must be comparatively close together, because the maximum temperature can not be increased above 150° or 160° F. without causing gasification and pumping difficulties. Some pipe lines have been wrapped with asbestos and others painted, then wrapped with burlap and painted again, in order to conserve the heat. By heating the heavy crude its movement is greatly accelerated, and the pipe line can be operated at normal capacity.

DISTANCE BETWEEN PUMPING STATIONS.—The average distance between trunk-line pumping stations in the Mid-Continent field as shown by the Commission's report on Pipe-Line Transportation of Petroleum (p. 56), is about 40 miles, but it was soon found that for heavy California crude, pumping stations 30 miles apart, even when the crude was heated, were too distant from each other to be operated successfully. The Pacific Coast Oil Co. built the first pipe line in California, which was constructed to transport heavy crude petroleum. This was an 8-inch line from the Kern River field to San Francisco Bay. Pumping stations were placed 28 or 30 miles apart, and "heaters" were installed at each station. The line was put in operation in March, 1908, when the ground was still cold, and by the time the crude had been pumped 15 miles it had lost all of the heat put into it at the station. Although the pumps were forced to the

highest pressures that could be safely used, this line, which should have transported 25,000 barrels per day in the Mid-Continent field, delivered only about 1,000 barrels per day. Even in the hot weather of the following summer it could not be operated at its full capacity. In the fall of 1903 the problem of transporting this heavy crude was solved by placing intermediate pumping stations with heating equipment on the entire line. Later, in 1907–8, an extension was built into the Midway-Sunset field, and on this branch and on the original line there are 22 pumping stations for a distance of 313 miles, or an average distance between the stations of about 15 miles.

OTHER METHODS OF FACILITATING TRANSPORTATION.—Several other expedients have been tried to accelerate the flow of heavy crude petroleum through pipe lines, some of which have been successful. When the Associated Pipe Line Co. built its pipe line from the San Joaquin Valley fields to San Francisco Bay, in 1908–9, it tried rifled pipe. This pipe had a spiral groove like a rifle barrel, and water was put in the line with the crude petroleum, which was expected to form a film between the crude and the pipe and thus facilitate the flow. This method was found unsatisfactory, however, because the water and oil could not be readily separated when the terminus was reached and later the rifled line was replaced by ordinary pipe. Other means of accelerating the transportation of the heavy crude petroleum in pipe lines have been to mix light crude with heavier grades, the use of an auxiliary steam line for heating purposes, and by treating the heavy crude by cracking before shipment.

CAPACITY OF PIPE LINES.—The carrying capacity of a pipe line used for the transportation of crude petroleum varies greatly, according to the size of the pipe, the distance between pumping stations, the pumping pressure used, the viscosity, and, particularly for heavy crudes, the temperature of the crude petroleum transported. Especially in the case of heavy viscous crudes in California the temperature of the oil changes the viscosity greatly, and, as already shown, the quantity of crude petroleum transported through a given pipe line can be increased many fold by increasing the temperature to 160° F. The principal sizes of pipe used on trunk lines are 6 and 8 inches in diameter, with some 10 and 12 inch pipe used for loops; while the working pressure usually varies from 600 to 800 pounds per square inch. An 8-inch pipe line in the Mid-Continent field, working at ordinary pressure with pumping stations 40 miles apart, will deliver about 21,000 barrels of crude petroleum daily, while a typical 8-inch pipe line in California using heat and pumping stations about 15 miles apart will deliver 30,000 barrels daily. To illustrate the extremes in operating with light and heavy crude petroleum under varying atmospheric temperatures, a given line pumped 18,000 barrels of light oil daily in warm weather, while the same line in cold weather transporting heavy viscous crude, averaged as low as 800 barrels daily.

COST OF PIPE LINES.—Pipe lines which are equipped to transport heavy viscous crude petroleum in California require a large investment per mile. The fixed investment in the line of the Shell Co. of California is given in the following table:

TABLE 68.—*Fixed investment in the trunk pipe line of the Shell Co. of California, Dec. 31, 1917.*

Item.	Shell Co. of California.	Item.	Shell Co. of California.
Land	$43,208.44	Miscellaneous and tanks	$22,783.93
Rights of way	97,136.70	Piping	185,978.62
Line pipe	735,695.79	Auxiliary machinery	146,481.35
Line pipe fittings	39,757.12	Oil tanks	260,482.64
Pipe line construction	681,916.29	Delivery facilities	200.00
Buildings	200,167.33	Telegraph and telephone lines	77,037.93
Boilers	188,162.70	Highway equipment	15,892.91
Engines and pumps	572,708.27	Other property	5,044.77
Water supply	16,422.07		
Electric wiring	3,238.22	Total	3,186,317.07

The fixed investment shown above was furnished by the company and shows the comparative expensiveness of pipe-line investment in California. The fixed investment for the Shell Co. of California equals an investment of about $16,800 per mile for this 170-mile line, and as this line was built in 1915 it represents a prewar cost.

The investment for the Union Oil Co. of California for its 420 miles of trunk pipe line was $9,050,140.30 at the end of 1917, or an average of about $21,500 per mile. However, the item of "oil tanks" in this company's statement apparently includes storage facilities at tank farms, which are greatly in excess of the storage required as working tanks at the pumping stations for purely transportation purposes. Assuming that at least 50 per cent of this storage item is not properly a pipeline facility, as is evidently the case, the cost would average $18,500 per mile. The pipe lines of this company were all constructed many years ago. (See p. 153.) Some of the pipe lines consist of pipe of smaller sizes, particularly in the Ventura County field. Such pipe is not as expensive as 8-inch pipe.

The General Pipe Line Co. of California, which is owned by the General Petroleum Corporation, had a fixed investment of $4,930,495 in 1915, representing 212 miles of 8-inch pipe line, or an average of $23,250 per mile. This pipe line was constructed in 1912–13, when prices were much lower than now. The line crosses the Tehachapi Range at a high elevation, where the rough and rugged character of the country would tend to make construction costs unduly high as compared with other pipe lines laid in the San Joaquin Valley, where the country is level and railroad transportation facilities are available for the movement of the requisite pipe and equipment. No comparative figures are available to show the fixed investment per mile for the Standard Oil Co. (California) or for the Associated Oil Co. and its subsidiaries.

These construction costs per mile exceed the cost of similar developments in the Mid-Continent field, where the pipe-line construction before the war cost approximately $7,000 per mile and the pumping stations $3,250 per mile, which for prewar construction gives a total of about $10,250 per mile. However, one pumping station in the Mid-Continent field pumps the crude petroleum about 40 miles, or

an average of more than two and one-half times as far as in California. Hence, it is evident that the erection of so many pumping stations equipped with heating facilities is one of the principal reasons for this difference in cost. The topography of the country is also an important factor. In the Mid-Continent field most of the large trunk lines have been built on or near railroad rights of way and there are no mountain ranges to cross.

OPERATING METHODS.—In California, for transportation purposes, the pipe-line companies classify all crude petroleum transported as heavy crude or light crude. The dividing point varies with the several companies from 17.9° to 22° Baumé. These grades are stored separately and the minimum runs of any given grade are kept as high as possible, in the case of the Standard Oil Co. (California), at a minimum of 100,000 barrels.

In operating "hot" lines, great care must be taken to allow the heated pipe line to cool and contract gradually before any crude at atmospheric temperature is pumped through the line, otherwise there is great danger of breaking the line or stripping the threads.

Section 5. The pipe-line law and common-carrier decisions.

COMMON-CARRIER LAW.—The Hepburn amendment to the interstate commerce act, passed by Congress in 1906, making pipe-line companies engaged in interstate transportation common carriers, apparently did not affect the operation of petroleum pipe lines in California, because all of the large systems were located entirely within the State. Therefore, the California State Legislature, on June 4, 1913, approved the pipe-line common-carrier law, which was entitled "An act declaring certain corporations, individuals, or associations of individuals engaged, directly or indirectly, in the transportation of crude oil or petroleum or the products thereof, for hire or otherwise, to be common carriers and public utilities, and subject to the provisions of the act known as the public utilities act of the State of California, approved December 23, 1911."[1]

Under this act every private corporation and every individual or association of individuals operating any pipe line or part of any pipe line, for the transportation of crude petroleum, directly or indirectly, for the public for hire, or when such pipe lines were constructed or maintained upon, along, over or under any public highway, or in favor of whom the right of eminent domain had been exercised in the acquisition of their right of way, or where any corporation, association of corporations, individuals or association of individuals, were able to secure, or attempted to secure a monopoly of the purchasing of or transportation of petroleum, were declared common carriers.

ATTITUDE OF THE STANDARD OIL CO. (CALIFORNIA).—On August 11, 1913, the California State Railroad Commission issued an order stating that after preliminary investigation it appeared that certain corporations might be subject to the provisions of the law, and requiring such corporations to appear before the railway commission "to show cause why the railway commission should not make its order requiring each of said companies to file with this Commission schedules of their rates and charges."[2]

[1] Chap. 307, Statutes of 1913.
[2] California State Mining Bureau Bulletin 63, Petroleum Industry of California, p. 477.

On August 14, 1913, in response to the above order of the California State Railroad Commission, the Standard Oil Co. (California) filed complete schedules of rates and regulations for the transportation of crude petroleum through its lines as a common carrier. The company filed these schedules under protest, and in a statement filed with the railroad commission declared that it had at no time used its pipe lines to transport any crude petroleum except that which it had produced or purchased, and that it had never accepted compensation, in any form, for the use of its pipe lines. It also stated that all of its pipe lines had been laid over rights of way purchased by the company, and while its lines crossed public highways at different points, that all such crossings had been made with the consent of the authorities, and the pipes had been placed and buried as directed by such authorities. A summary statement was made regarding pipe line and refining capacity of the company, in which it was asserted that it used about 30 per cent of the total production of the State. After calling attention to the fact that it had the alternative of either becoming a common carrier, or, if it remained a private carrier, of obtaining an annual license and paying a fee of 50 cents per barrel for every barrel of crude petroleum transported across the public highways, the company elected to become a common carrier and concluded its statement as follows:[1]

> In constructing the pipe lines above described, which grew with the development of the oil fields, the company was forced to cross highways which intersected its private right of way. These crossings it can no longer use, in compliance with the act mentioned, without making the payments required thereby, unless the lines are operated for common carriage. But to maintain its pipe lines the company must continue to cross the highways. It can not pay the said fees or exactions and continue in business. Its lines are therefore forced into a service which the company has neither sought nor which it could be lawfully compelled to render.
>
> Under these conditions the company will, from and after the 10th day of August, 1913, own, operate, manage, and control its pipe lines for the transportation of crude oil, and will engage in the business of transporting crude oil or petroleum, by its pipe lines, as a common carrier, and it will further in every reasonable way the performance of the business which it thus engages to do, and will, so far as it can, facilitate the supervision and regulation of that business by the Railroad Commission of the State of California, while said chapter 286 is in force and binding thereon.

COMMON-CARRIER DECISIONS.—The Associated Oil Co. and Associated Pipe Line Co., which is jointly owned by the Associated Oil Co. and the Southern Pacific Co., and the Producers' Transportation Co., which is controlled by the Union Oil Co. of California, each brought suit against the California State Railroad Commission to prevent that commission from requiring them to act as common carriers. In the case of the Associated Oil Co. and the Associated Pipe Line Co. v. the Railroad Commission of California, the California State Supreme Court decided in favor of the pipe line company, while the same court decided in favor of the railroad commission in the case of the Producers' Transportation Co. This latter case was appealed to the United States Supreme Court and the decision of the lower court was affirmed. Hence, in the case of these two pipe-line companies, one, the Associated Oil Co.-Associated Pipe Line companies,[2] has been judicially declared a private carrier, while the Producers' Transportation Co.[3] has been held to be a common carrier. Although the Producers' Transportation Co. was declared a common

[1] Standard Oil Bulletin, September, 1913.
[2] 169 Pacific Reporter, 62.
[3] 231 U. S., 225.

carrier by decree of the Supreme Court of the United States on January 5, 1920, the attorney for the Railroad Commission of California stated to a representative of the Federal Trade Commission a year later that the railroad commission had not followed up the decision in this case and had not required the Producers' Transportation Co. to file pipe-line rates.

Section 6. Pipe-line rates, regulations, and cost of operation.

EARLY HISTORY OF RATES.—As already stated, Congress in 1906 passed the Hepburn Act amending the interstate commerce act making pipe lines engaged in interstate transportation common carriers and placing them under the jurisdiction of the Interstate Commerce Commission. The constitutionality of this act was attacked in the so-called "pipe-line cases," and the question was carried to the United States Supreme Court, which rendered its decision on June 22, 1914, upholding the Hepburn Act. Prior to this decision some pipe-line tariff schedules had been filed with the Interstate Commerce Commission. The primary principle in rate making, which was adopted by the eastern pipe-line companies at that time, was to follow the published railroad rates. No attempt was made to approximate the rates to the cost of the service together with a reasonable return on the investment. This practice was followed by all the eastern pipe-line companies. For example, in 1904 the pipe line and railroad rate from Griffith, Ind., to Buffalo, N. Y., a distance of 606 miles by pipe line, was 19.5 cents per 100 pounds by both rail and pipe line.[1] Among other considerations tending to make such a basis for pipe-line rates the rule, was the fact that pipe lines were frequently constructed on the rights of way belonging to the railroads, although there was no community of interest in the ownership of the pipe line and the railroad. Instances are also found where railroads increased their rates for the transportation of crude oil after a pipe line had been built along their right of way, and when a pipe-line schedule was filed it named the same rate as the increased railroad rate.[2]

The pipe line of the Pacific Coast Oil Co. from the Kern River field was laid along the line of the Southern Pacific Co. for many miles and the contract authorizing the use of the right of way by pipe-line company contained the stipulation: "It also being the express understanding * * * that the pipe line * * * is only to be used * * * for its own oil * * *." The rate established for the transportation of oil at that time was a constructive charge for pipage and corresponded exactly with the freight rate for the same haul. These pipe-line charges have always been intercompany or interdepartmental in California.

After the Supreme Court had rendered its decision in the pipe-line cases, on June 22, 1914, schedules were filed by all companies engaged in interstate transportation of crude petroleum by pipe line. These new schedules named substantially lower rates for pipe-line transportation than were charged by railroads between the same points. The pipe-line rates for long distances, as for example, from the principal shipping points in Oklahoma to the Atlantic seaboard were

[1] Report of the Commissioner of Corporations on The Petroleum Industry, pt. 1, pp. 343-345.
[2] Federal Trade Commission Report on Pipe-Line Transportation of Petroleum, p. 448.

approximately one-half those charged by the railroads, while for intermediate points, such as Cleveland, Ohio, Buffalo, N. Y., and Pittsburgh, Pa., the pipe-line rates were from 55 to 60 per cent of the railroad rates.[1]

It was an early practice, which is still in use, for the eastern pipe lines, particularly in the Appalachian field, to allow a shipper to retain title to his crude petroleum after it has been received by the pipe-line company. The shipper was issued a "credit-balance" or received a "pipe-line certificate" for the crude which might be sold in the open market. This practice has never existed in the Mid-Continent or other western fields. In these sections the crude petroleum in the pipe line has always belonged to the crude purchasing company. This latter condition is found in California.

RATES PER BARREL.—Pipe-line rates for common carrier shipments have been named by three companies, viz, General Pipe Line Co. of California, Shell Co. of California, and the Standard Oil Co. (California). These rates are shown in Appendix Table 44.

While schedules naming rates and regulations governing transportation of crude petroleum have been on file, in some cases since 1913, as a matter of fact the pipe lines have not been operated as common carriers.

REGULATIONS GOVERNING SHIPMENTS.—Pipe-line regulations governing the transportation of crude petroleum are often as significant as the rates themselves. In general there are four conditions imposed upon pipe-line shipments which are not required for shipment by rail. Those requirements cover: (1) The minimum quantity of petroleum received for transportation; (2) the quality of the petroleum accepted for shipment; (3) identity of crude petroleum delivered; (4) loss of crude in transit.

The minimum quantity specified in the schedules governing shipments which have been filed by California pipe-line companies varies from 10,000 barrels in the case of General Pipe Line Co. of California to 100,000 in the case of the Standard Oil Co. (California).

All of the schedules filed by California companies specify that the crude petroleum shall be of the same kind and gravity and that impurities, such as sand and water, shall not exceed 3 per cent. This requirement varies greatly for crude petroleum from different fields. The heaviest crude petroleum which will be accepted for transportation by pipe lines varies from 15° Baumé in the Midway-Sunset field to 22° Baumé for shipment from the Pico Canyon pool.

In transportation by rail the shipper receives the identical crude petroleum shipped, while the pipe-line companies do not obligate themselves to deliver even the same quality of crude as they have accepted for shipment. For example, the schedule of the Standard Oil Co. (California) contains the following:

> All such crude petroleum will be accepted for transportation only on condition that it shall be subject to such changes in kind and gravity while in transit as may result from the mixture of said crude petroleum with other crude petroleum in the pipe lines or tanks of this company.

The pipe-line schedules provide that the pipe-line company shall deduct 2 per cent to cover loss in transit. In addition, the pipe-line companies make a pro rata deduction from all oil in transit in case of

[1] Federal Trade Commission Report on Pipe-Line Transportation of Petroleum, p. 448.

unusual loss caused by breakage of pipe lines, leakage in tanks and pumps, and other causes over which they have no control.

COST OF TRANSPORTATION.—The Commission has not made a detailed study of the cost of transporting crude petroleum by pipe line in California. An exhaustive report on such costs involves detailed information covering pipe-line investment, the cost of operation, and the quantity and distance the crude petroleum is transported. However, five of the large pipe-line companies operating in California furnished some information on pipe-line costs, three of which have filed schedules as common carriers. The cost of the operation of certain pipe lines, as reported by the principal pipe-line companies, is shown in Appendix Table 45.

The Standard Oil Co. (California) owns and operates directly all the pipe-line mileage listed under its name. The Associated Oil Co. owns the pipe line from the Santa Maria oil field to the Gaviota refinery, while the pipe line from the San Joaquin Valley oil fields to Avon is operated by the Associated Pipe Line Co., which company is controlled jointly by the Associated Oil Co. and the Southern Pacific Co. The General Petroleum Corporation controls the General Pipe Line Co., which owns and operates the pipe lines transporting crude petroleum for the parent company. The Shell Co. of California controlled the Valley Pipe Line Co., which owned and operated the Coalinga-Martinez pipe line during the period 1915–1917. Since that time this line had been owned by the Shell Co. of California. The Union Oil Co. of California owned a controlling interest in the Producers' Transportation Co., which owned and operated the San Joaquin Valley-Port San Luis pipe line during 1915–16, but during 1917–1919 the pipe-line assets of this company have been reported in the statements of the parent company. The pipe line from Santa Maria to Port San Luis has always been owned and operated by the Union Oil Co. of California directly.

The Standard Oil Co. (California) reported a separate cost for the heavy and light crudes. This company includes in its heavy crude petroleum all crude 17.9° Baumé and lower, while the light crude includes all 18° Baumé or higher. Their cost for transporting the heavy crude is uniformly about 10 per cent higher than that for light crude.

The reported costs for all of the lines shown in the table except for the Shell Co. of California increased greatly from 1914 to 1919. The Standard Oil Co. (California) shows an increase in cost of about 50 per cent from 1914 to 1919 from the San Joaquin Valley fields to their Richmond refinery on San Francisco Bay, while the cost for shipments from the Whittier-Fullerton field to the El Segundo refinery near Los Angeles remained practically the same throughout the period, due to increased volume transported during the later years. The Union Oil Co. of California shows the greatest increase—over 120 per cent. The reported costs of the Associated Oil Co. increased almost 100 per cent from 1914 to 1919, and those for the General Pipe Line Co. of California increased 70 per cent from 1915 to 1919. The reported costs for the Shell Co. of California shows an abnormally high cost for 1915, while from 1916 to 1919 their reported costs remain practically the same.

Although the costs as reported by the companies generally increased, the rates which the companies allow their pipe-line depart-

ments or subsidiary companies remained unchanged throughout the period, except in the case of the Shell Co. of California, in which case the rate was increased from 15 to 25 cents per barrel in February, 1918. Hence the margin between the reported cost per barrel and the pipe-line rate per barrel is as a rule much smaller in 1919 than in 1914.

The distance transported and the quantity of crude piped by the several pipe-line companies is not available; therefore no adequate and satisfactory comparison can be made between the charges for this transportation service and the reported cost. Three pipe-line systems are available for use in the San Joaquin Valley fields, while two other pipe lines extend to portions of this crude-oil area. The Standard Oil Co. (California), the Associated Pipe Line Co., and the Union Oil Co. of California operate pipe-line systems extending to all oil pools in the San Joaquin Valley; the first two charge 35 cents per barrel for delivery at points on San Francisco Bay. The greatest distance that the crude is transported by pipe line is that by the Standard Oil Co. (California) from the Midway-Sunset field by way of the Kern River field to San Francisco Bay, a distance of 313 miles, while the Associated Pipe Line Co. has a more direct line, but its nominal charge is the same, i. e., 35 cents per barrel. The Union Oil Co. transports its crude from the San Joaquin Valley westward to Port San Luis, and thence by tank steamer to San Francisco Bay. The rate for the pipe line service is 22½ cents per barrel and the marine charge is 10 cents, giving a total cost of 32½ cents as compared with the rate of 35 cents quoted for the other two companies mentioned above. The rate for the line now owned by the Shell Co. of California was 15 cents per barrel from the Coalinga field to San Francisco Bay, but early in February, 1918, this rate was increased to 25 cents.

The pipe line controlled by the General Petroleum Corporation formerly carried the crude oil south from the Midway-Sunset field to Vernon, where it was refined. The rate for this service was 25 cents per barrel. More recently, however, the crude supply for the Vernon refinery has been obtained from the Whittier-Fullerton field. Other pipe-line operations shown in the table include the line of the Standard Oil Co. (California) from the Whittier-Fullerton field to the El Segundo refinery; the Associated Oil Co.'s pipe line from the Santa Maria field to Gaviota and the pipe line of the Union Oil Co. of California from the same field to Port San Luis. The Standard Oil Co. (California) quoted a rate of 8 cents per barrel, the Associated Oil Co. a rate of 15 cents per barrel, and the Union Oil Co. of California a rate of 10 cents per barrel for the lines named above.

The information available regarding pipe-line operating cost is not complete nor comprehensive and has not been verified or revised by the Commission.

Section 7. Investment and earnings.

The pipe-line investment, operating expenses, and earnings of the five large companies controlling the major portion of the pipe lines in California were not reported in sufficient detail to enable the Commission to eliminate such items as investment and earnings from outside sources from the reported totals, and thus show the exact earnings for the pipe-line business. The net pipe-line investment, including

working capital, and the earnings as reported by the companies, and the rate of earnings based on the investment at the end of the year for the first year, and on the mean investment, which is obtained by taking one-half of the sum of the investment at the beginning and end of the year for the later years, is shown in the following table:

TABLE 69.—*Net investment, earnings, and rate of earnings in pipe-line business of five large companies, 1914–June 30, 1919.*

Company and year.	Net investment.	Earnings.	Annual rate of earnings.
Standard Oil Co. (California):			Per cent.
1914	$13,635,461.19	$3,441,881.74	25.2
1915	12,386,793.02	4,066,937.63	32.8
1916	10,905,875.89	6,362,935.54	58.3
1917	10,794,848.25	7,645,924.13	70.8
1918	10,863,145.72	2,894,749.03	26.1
1919[1]	10,759,332.51	1,217,171.73	22.6
Average			40.0
Associated Oil Co.:			
1914	6,662,894.34	2,073,758.83	31.1
1915	6,526,976.27	2,725,902.47	41.7
1916	6,526,579.63	2,582,534.92	39.6
1917	6,290,533.00	1,915,271.34	29.3
1918	6,661,856.71	1,009,655.89	15.4
1919[1]	6,671,793.63	404,645.40	12.1
Average			29.3
Union Oil Co. of California:			
1915	1,822,982.26	202,199.24	11.1
1916	1,443,718.58	272,681.08	18.8
1917	4,270,804.23	81,704.44	1.9
1918	7,135,148.71	667,367.95	9.6
1919[1]	6,886,380.55	377,923.64	11.3
Average			9.0
General Petroleum Corporation:[2]			
1916[1]	6,864,203.64	633,993.34	18.6
1917	7,112,554.27	1,036,445.75	14.9
1918	7,157,718.58	[3] 58,239.21	[3] 8
1919[1]	6,722,611.08	[3] 229,076.13	[3] 6.8
Average			6.7
Shell Co. of California:			
1918	2,328,226.73	604,485.31	30.1
1919[1]	2,221,270.41	400,633.92	35.9
Average			32.0

[1] Earnings for first 6 months.
[2] Owns General Pipe Line Co. of California.
[3] Loss.

The net investment for most of the companies shows a decline throughout the period which is due to the fact that the depreciation charged each year is generally in excess of new investment. This decrease is particularly pronounced in the case of the Standard Oil Co. (California), whose net investment was $13,635,461.19 at the end of 1914, while net investment for 1919 was only $10,759,332.51.

The investment of the Union Oil Co. of California for the years 1917–1919 includes the Producers' Transportation Co., which is not reported for the preceding years, while during 1915–1917 the Valley Pipe Line Co. operated the pipe line now owned by the Shell Co. of California. The General Petroleum Corporation has no pipe line, but controls the General Pipe Line Co. of California, which owns and operates the pipe line listed under the parent company. The total

investment for this company has been decreased by the elimination of $6,000,000 for good will.

The gross income from the operation of pipe lines depends upon the quantity transported through the lines and the rate per barrel which is allowed for this service. A pipe line should be operated continuously and up to its capacity in order to obtain maximum efficiency. Adequate information regarding the total quantity transported by the pipe lines in California, commonly known as "pipe-line runs," is not available. The pipe-line rates have been discussed in the preceding section of this chapter. The income, as shown for the several companies, is taken directly from the reports of the company with certain revisions for the Standard Oil Co. (California) and the General Pipe Line Co. of California. In the former case the profit or loss on oil delivered to the refineries, as shown in the oil account, is added to or deducted from income, as the case may be, for each year, while for the General Pipe Line Co. of California the charge for interest on bonds has been added back to the income.

The earnings for the Standard Oil Co. (California) doubtless contains some income from sources other than transportation, particularly for the years 1916 and 1917, although some deduction has been made to eliminate any profit on crude petroleum held in storage. The average earnings of the Union Oil Co. of California were low, except in 1916, when there was a marked decrease in the total investment. The Shell Co. of California shows a high rate of earnings for 1918 and 1919, the only years for which information is available. These large earnings were partly due to the fact that the rate per barrel was increased in February, 1918, to 25 cents, while the rate had been 15 cents during 1915–1917. The General Pipe Line Co. of California reports moderate earnings for 1916 and 1917 and losses for 1918 and 1919. The quantity of oil transported was low in the latter years, because numerous exchanges and purchases of crude petroleum for refining purposes have obviated the continuous use of this particular pipe line. Generally, it may be said that pipe-line earnings have tended to decline during the period 1914–1919, which is due to the fact that the rates, except in one case, have remained constant throughout the period, while the operating costs increased in conformity with the upward movement in wages and in the prices of materials and supplies.

The rates of earnings shown on the net pipe-line investment were generally higher than those for other departments, as, for example, refining and marketing. (See p. 199.) The net investment shown above includes the fixed investment and working capital less depreciation, and presumably includes the investment in both trunk and gathering lines. There is a comparatively small increase in the investment for the different companies from year to year, due to the fact that there was no considerable extension of the trunk lines during the period. The largest single pipe line constructed from 1914–1919 was that by the Valley Pipe Line Co., which was later taken over by the Shell Co. of California. The fixed investment in this line amounted to about $3,200,000. As already pointed out, the pipe-line facilities from the different fields have been more than sufficient to transport all the crude petroleum produced each year for the period covered.

The gross fixed investment—that is, the investment before depreciation was deducted—for the companies listed in the foregoing table was $44,543,000 in 1919. At the end of 1919, however, the investment for the Associated Oil Co. represented only 50 per cent of that for the Associated Pipe Line Co., as the Southern Pacific Co. owns half of the latter company. If the total investment for the Associated Pipe Line Co. is included the gross fixed investment in pipe lines for the five large interests, including both trunk and gathering lines, and probably some storage in excess of pipe-line requirements, would amount to approximately $50,000,000.

Chapter VIII.

REFINERY COSTS AND REFINERY AND MARKETING INVESTMENTS AND EARNINGS.

Section 1. The refining industry.

Development of refining.—One of the first attempts to refine California crude petroleum was in 1856 when "some effort was made to refine oil at Brea Ranch."[1] There was little development until 1875, which is said to be the date of the first commercial production of petroleum in California, when a small refinery was constructed at Lyons Station, near Newhall, consisting of two stills or "retorts," with a combined capacity of 75 barrels of crude petroleum; the crude in barrels was hauled by wagons a distance of 9 miles from the wells to this refinery.

The Pacific Coast Oil Co., which was organized and became identified with the California oil business in 1879, completed what was then a "modern refinery," at Alameda, across the bay from San Francisco, with a refining capacity of 600 barrels per day. A pipe line was laid from the wells in Pico Canyon to Newhall, and from that point the crude petroleum was transported to Alameda in tank cars. This was the first transportation of California crude petroleum in bulk by pipe line and tank cars.[2]

Little progress was made in developing the petroleum refining industry prior to 1895. It had been difficult to refine kerosene from California crude petroleum, which could be used satisfactorily for illuminating purposes, and as at that time the principal demand was for illuminating oils, there was little incentive to build additional refining plants. About 1890 the Pacific Coast Oil Co. entered into an arrangement to sell its refined products to the Standard Oil Co. This latter company was a marketing company and utilized the California product by mixing it with kerosene refined in the East and put it on the market as a "safe, reliable oil with proper burning qualities."[3] Later a method of treating California crude petroleum was discovered and a satisfactory kerosene was secured without blending with that produced in the East.

In 1895 the Union Oil Co. of California erected and began operating its refinery at Oleum on San Francisco Bay. The following year, 1896, the Puente Oil Co. constructed its plant at Chino, and in 1899 a refinery was constructed at Gaviota, which was later, in 1906, acquired by the Associated Oil Co. The Associated Oil Co. was thus the third of the present five large refining companies to begin operation in California. These plants are still being operated.

In 1900 the Standard Oil Co. (New Jersey) acquired the stock of the Pacific Coast Oil Co. and since that time petroleum refining in California has been developed on a large scale. Prior to 1900 only

[1] California State Mining Bureau, Bull. 69, p. 368.
[2] Standard Oil Bulletin, May, 1913, p. 10.
[3] Ibid.

gasoline, refined oil (kerosene), a few grades of lubricating oils, and asphalt had been manufactured from California crude, and the products were only sold locally and at points easily reached by the transportation facilities.[4]

As already stated, the rapid development in refining began about 1900, and by 1904 more than a score of small refineries had been constructed. It was during this period that the Pacific Coast Oil Co. dismantled its small refinery at Alameda and erected a large refinery at Richmond on San Francisco Bay. The Richmond plant was then, and it is to-day, the largest refinery on the Pacific coast, and is one of the largest in the United States. In 1904 it consumed 3,317,000 barrels, or about 30 per cent of all the crude petroleum refined by by all the refineries in California, notwithstanding the fact that there were 32 companies operating 34 refineries in the State.

The General Petroleum Co., the predecessor of the General Petroleum Corporation, erected a large topping plant at Vernon, near Los Angeles, in 1912, and the Shell Co. of California began operating its large lubricating plant at Martinez on San Francisco Bay, and a topping plant at Coalinga in 1916. These two companies were the last of the present five large refining companies to begin refining activities in California.

There was steady progress in the development of the petroleum refining industry in California from 1910 to 1920. Among the larger refining plants built during this period were those constructed by the Union Oil Co. of California. In 1910 this company built a 17,000-barrel plant at Avila, in 1911 a 10,000-barrel plant at Brea, and in 1919 a 12,000-barrel plant at San Pedro. While many small plants have been built only to be operated a short time and then abandoned, each year has seen a material increase in the total refining capacity of the State. The total crude petroleum treated in the refineries in California increased from a little over 4,000,000 barrels in 1904 to over 72,000,000 barrels in 1919, which represents an increase of 1,700 per cent, while during the same period the crude petroleum production of the State increased from 29,500,000 to 101,200,000 barrels, or 243 per cent.

The construction of extensive pipe lines and the utilization of tank steamers for the transportation of crude petroleum has enabled large refining companies in California to follow the practice, which had been proven most economical in other parts of the country, of locating their large refining plants near the large consuming centers which afford the best transportation facilities from which to distribute their refined products. The fundamental factor which decides the location of a petroleum refinery is the relation between the cost of transportation of crude petroleum and that of the refined products. Crude petroleum is mainly transported by pipe lines, while refined products are largely transported by rail and water carriers, and as the cost of transportation by pipe line is very much less than the cost of transportation by rail, the ideal location for a refinery is near a large consuming center which is supplied with adequate rail and water transportation facilities for use in the distribution of refined products. There are two such locations in California—on San Francisco Bay and in the neighborhood of Los Angeles. There are seven refining plants

[4] Standard Oil Bulletin, June, 1912.

in California with a rated daily capacity of over 20,000 barrels each, four of which are located on San Francisco Bay, two in the vicinity of Los Angeles, and only one near the inland oil fields. This latter refinery is located near Bakersfield, and a very large percentage of its distillates are transported in an unfinished state, by pipe line, to Richmond on San Francisco Bay, where the refining process is completed. Refineries in California which are located near the oil fields have difficulty in securing an adequate water supply, are far from the labor markets of the State, and have only a limited local market for their refined products.

REFINERIES IN CALIFORNIA.—During 1919 there were 26 companies engaged in refining crude petroleum in California. These 26 companies operated 38 refining plants, which represented a gross investment of about $50,000,000. Their rated daily refining capacity was almost 308,000 barrels, or about 112,000,000 barrels per year. Their capacity was about 11,000,000 barrels greater than the 1919 production and over 6,000,000 greater than that for 1920. As a considerable proportion of the California crude petroleum production is a heavy crude that is mostly sold for consumption as fuel without refining, this capacity is much greater than can be supplied by the present crude production. In 1919 about 72,618,000 barrels were refined, or 65 per cent of the rated capacity.

The five large refining companies operate 15 refineries, representing a gross plant investment of nearly $47,000,000, or 94 per cent of the total. Their rated daily capacity was 274,300 barrels, or about 89 per cent of the total. The plants of the five companies consumed over 66,000,000 barrels of crude petroleum during 1919, which was 91 per cent of the total for the entire refining industry in California.

The location, date constructed, gross value of plant investment January 1, 1920, the rated daily capacity, the quantity of crude petroleum refined in 1919, and the principal refined products produced by each are shown in Appendix Table 46.

PRINCIPAL PROCESSES.—A brief nontechnical description of the principal refining processes and methods in use in California is desirable in order to clearly present the different phases of this branch of the petroleum industry of that State. In general, petroleum refining consists of heating the crude petroleum until it is vaporized and then condensing the vapor. This operation is termed distillation and it breaks up the crude petroleum into fractions of different gravities, densities, and degrees of inflammability. The lighter and more volatile fractions vaporize first, and as the distilling process is continued the distillates constantly become heavier and less volatile, until a nonvolatile residuum remains in the still. Each fraction that has been vaporized and condensed consists of a mixture of dissimilar portions and the cut or division point between any two products is more or less arbitrary. A change in this division point affects both the quantity and quality of a given product, and the refiner is enabled to vary the yield of some products within certain limits in response to supply and demand conditions.

Straight-run process.—The straight-run still, although rarely used at the present time, clearly illustrates the principles involved in the process of distillation. The crude petroleum is charged into the still by means of a pipe passing through the top of the still, and continuing down near the bottom to avoid splashing and evaporation

while charging, and also to allow the crude to be pumped back to storage if it is desired to empty the still before it has been heated. As soon as the still is filled the charging line is closed and the fire is started. When the temperature of the crude is brought to the proper point the light fractions begin to vaporize and pass through the vapor line to the condenser. Here the vapor is cooled and condensed. The condensate collects and passes through a pipe, called the tail pipe, into the receiving house. The tail pipe ends in a box, called the "look box," with glass sides, so that the size and character of the stream can be seen. Tests are taken of the distillate at the look box so that the stream can be diverted into the proper receiving tank. It is here that the "cuts" are made in the distillate. The first product is usually light crude naphtha, the second heavy crude naphtha—then generally two grades of kerosene distillate, and next gas oil. The last cut is usually the lubricating distillate, and when this distillate has been obtained the fires are drawn, the residuum is drawn off, and the still is allowed to cool and is then prepared for another run.

Continuous crude stills.—By constructing a battery of stills properly connected with each other, the process of distillation is made continuous. In this process the crude petroleum is constantly fed into the first still, which is maintained at a constant temperature sufficient to vaporize the light naphtha distillate. A continuous stream of this distillate is obtained from this still. The residue from this still constantly passes on into the second still, which is maintained at a higher temperature sufficient to vaporize the heavy crude naphtha. A continuous flow of this distillate is thus secured from the second still. The residue passes on to the next still, and so on to each succeeding still. As the residue passes from one still to another it encounters constantly higher temperatures, which are sufficient in each case to vaporize a heavier distillate. From the last still of the battery the residuum goes into a receiving tank. The vapors from each still are conducted into separate condensers, from which distillates pass through the tail pipe into the look boxes and thence into separate tanks. The same principles of the straight-run process apply in the continuous crude stills without the loss of time involved in emptying the still, cooling it off, refilling it with crude petroleum, and then heating it again.

Rerun stills.—The distillates from the crude stills, often called the products of the first distillation, are in an unfinished state and require further distillation and treatment to produce the finished products. Rerun stills are similar to crude stills and are reserved for rerunning certain distillates. Naphtha distillate, however, is not rerun in such stills, but in steam stills, as described later.

Heavy kerosene distillate, called in some sections "standard white" distillate, is rerun, producing crude naphtha, light kerosene distillate, heavy kerosene distillate (which is again rerun), and fuel oil. The crude naphtha goes into stock with crude naphtha from other sources. The light kerosene distillate is ready for treatment in the agitators.

Lubricating plants have lubricating stills, which are simply rerun stills equipped for rerunning lubricating distillate, producing various grades of lubricating stocks, which through filtering and other

processes and compounding or mixing, with animal and vegetable oils, produce the innumerable grades of lubricating oils.

Agitators.—All refineries producing finished gasoline and kerosene are equipped with agitators. An agitator is a cylindrical tank equipped for treating crude naphtha and light kerosene distillates with chemicals, such as sulphuric acid, to remove impurities and coloring matter. The distillate to be treated is run into the agitator, the acid is sprayed on top, and an air blast is inserted in the bottom of the tank, which sets the distillate in motion. The "rolling and tumbling" motion thoroughly mixes the acid with the distillate. After settling, the "acid sludge" is drawn off from the bottom of the tank. The distillate is then washed with water and treated with an alkali, such as caustic soda, to neutralize all traces of the acid, when it is again washed to free it from the alkali.

Steam stills.—After receiving treatment in the agitators the naphtha distillate is ready for its final process, that of finishing in the steam stills. In this process the treated naphtha distillate comes in direct contact with live steam, which is distributed from perforated pipes running along the bottom, the full length of the still, so as to distribute the steam evenly and directly into the naphtha distillate. This is the final process in the production of gasoline and naphtha. From crude naphtha treated in the steam stills all desired grades of finished gasoline and naphtha are secured and the residue, "naphtha bottoms," is considered the same as heavy kerosene distillate.

Cracking processes.—During recent years there has been a large increase in the use of different cracking processes by refiners throughout the United States; but in California only two refiners have installed such plants. The cracking process is used to obtain larger yields of such products as gasoline and kerosene than can be secured by ordinary methods of distillation. This process does not operate upon crude petroleum but redistills heavy distillates such as gas oil and fuel oil. In the cracking process these distillates are subjected to extremely high temperatures under very heavy pressure in specially constructed stills called pressure stills. The high temperature and heavy pressure cause the molecules of gas and fuel oil to break up and the atoms to rearrange themselves and produce an additional yield of lighter gravity distillates, such as crude naphtha and kerosene distillate. The crude naphtha and kerosene distillates are then treated and finished in the same manner as such products produced by ordinary methods of distillation. The process of cracking and rerunning is practical when the price of gas oil and fuel oil are comparatively low and it is desired to get a high yield of gasoline. It is not practiced extensively in California where fuel oil finds a ready market at comparatively good prices.

Section 2. Yields from California crude petroleum.

CHARACTER OF CALIFORNIA CRUDE.—Practically all of the crude petroleum produced in California is an asphaltic base crude and yields a comparatively small percentage of the lighter products such as gasoline and naphtha. The great bulk of California crude ranges from 8° to 40° Baumé, and its character largely determines the use that is made of it; for example, the heaviest crude, ranging from 8° to 14° Baumé, is best adapted to the production of asphalt, and the

asphalt plants generally operate on this grade of crude; the crude ranging from 14° to 17.9° Baumé, which is designated commercially as "crude fuel oil," or heavy crude, is largely used for fuel oil in its crude state or is mixed with refinery residuum and marketed as fuel oil, while the lighter crude petroleum beginning with that 18° Baumé is termed light crude, and is used by petroleum refineries for the production of refined products. Recently, on account of the great demand for gasoline and lubricants, heavier grades are being refined. In this connection the Standard Oil Co. (California) defines its policy as follows:

> Through its processes, the company finds something of value in all California crude oil. There is a practice in California of selling lower grade oils for fuel, without the crude being put through a refining process. This this company does not do, and even the heaviest grades of crude oil are passed through the refinery. It is a fixed policy of the company that it markets no crude oil even for fuel purposes.

PRINCIPAL REFINED PRODUCTS.—There are a large number of products obtained from a barrel of crude petroleum by California refineries; these products vary from solid coke to the highly volatile aviation gasoline, which ranges from 72° to 75° Baumé. The principal products are as follows:

	° Baumé.		° Baumé.
Aviation gasoline	72 –75	Gas oil or Diesel oil	27–29
Motor gasoline	54 –58	Lubricating oils	20–28
Engine distillate	44 –47½	Residuum	15–20
Kerosene domestic	42 –43½	Road oil	10–12
Kerosene export	40 –40½	Asphalt	Semisolid.
Stove distillate	33½–35	Coke	Solid.

Stove distillate is simply an untreated kerosene.

There are several hundred grades of lubricating oils and their quality is determined by the degree of refining and the formulas of compounding rather than by the Baumé test. There are also a number of grades of asphalt. In California the coke is used by the refiners for fuel in connection with their refinery operations.

A small quantity of crude petroleum, which has a paraffin base, is produced in the Ventura County Field, from which two companies—the Standard Oil Co. (California) at El Segundo and the Ventura Refining Co. at Fillmore—secure a small percentage of paraffin wax.

The early refineries operated primarily for kerosene, with naphtha or gasoline as a secondary product. With the development of the internal combustion engine, the refiners shifted from kerosene as a main product to gasoline. Improvement in internal combustion engines which permit the use of gasoline of a lower Baumé test, together with improvements in refining processes, have greatly increased the yield of gasoline from the California crude. This has been done at the expense of heavier products. The construction of internal combustion engines consuming a product known as "engine distillate," containing both gasoline and kerosene, has curtailed the kerosene output. For comparative purposes gasoline and engine distillate may be combined, as both products are consumed in internal combustion engines. In fact a profitable study of the yield statements may be made by combining the yield of gasoline, engine distillate, and kerosene. These are the principal products affected by the policy of manipulating the runs so as to obtain higher yields of products which are more in demand and higher in price. Since at the present time these products are the

higher priced, refiners as a rule endeavor to obtain the maximum yield of these three combined. The yield statements reveal the fact that as the percentage of gasoline obtained from crude petroleum increases there is a corresponding decrease in the yield of kerosene and heavier products, and as the quantity of lubricants is increased there is a further reduction in the percentage of fuel oil produced.

During the last few years there has been a marked increase in the quantity of lubricating oil refined from California crude petroleum. The demand for lubricating oils has been greatly increased by the development in the use of internal combustion engines, and this has led some of the California refiners to equip their plants for the production of lubricating oils. As a result, lubricating distillate, which formerly remained in residuum and was marketed as fuel oil, is now cut off separately and run through the lubricating stills, where it is further refined and blended with certain animal and vegetable oils and ultimately yields several hundred grades and brands of lubricants. California lubricants are advertised as "strictly asphalt base oils" and are guaranteed to contain no paraffin. It is claimed that they stand the cold test better than paraffin base lubricants.

The "residuum" or residue from the refining process is considered more important in California than in the other sections of the United States, mainly because the demand for fuel oil is more regular and the price relatively higher on the Pacific coast than in other sections of the country. This higher price is due to the less effective competition of other fuels on the Pacific coast. As the fuel oil obtained from the refining process consists of the residuum left after taking off the lighter products, any increase in the yield of refined products is accompanied by a corresponding decrease in the percentage of fuel oil produced, and furthermore, an increasing percentage of the total crude petroleum produced in California is run through refineries each succeeding year, thus further decreasing the fuel oil proportion of California crude petroleum.

REFINERY YIELDS.—The United States Bureau of Mines began the collection of detailed statistics of petroleum refinery production and the stocks of refined products for the year 1916, and since that time it has obtained more detailed information regarding refinery operations. The Commission has compiled a table from the refining statistics gathered by the Bureau of Mines, eliminating unfinished distillates rerun, showing the total quantity and percentage of each of the leading products obtained from the crude petroleum refined by all the refineries in California from 1916 to 1920 inclusive. (See Appendix Table 47.) The percentage that the quantity of each products bears to total crude run agrees substantially with the combined yield of products obtained from California crude petroleum by the principal refineries covered in detail in this report. The quantity of crude petroleum refined in California increased from 62,950,127 barrels in 1916 to 76,410,932 barrels in 1920.

The gasoline and naphtha produced increased both in quantity and in percentage from 1916 to 1920. The kerosene production fell off greatly in 1918 due to the fact that the refiners produced as little as possible on account of the strong demand for highly volatile products such as gasoline, while in 1919 and 1920 there was an enormous increase in its production, both in total quantity and in percentage. In these years there was a strong export demand for kerosene.

The quantity of fuel oil obtained after distilling off the lighter products increased from 1916 to 1919, but the percentage obtained from the crude and distillates refined decreased considerably. The quantity and the percentage of lubricants produced was higher in 1917 than in any other year. Other products show the largest production in 1918, while there was a steady increase in the quantity and percentage of refinery loss throughout the period 1916 to 1920.

The Commission obtained detailed information for the five large refining companies operating in California. This information was either taken directly from the records of the different companies by examiners of the Commission or checked by them with such records. A comparison is shown between the combined production for the five companies, by products, and the total for all refineries in California in Appendix Table 48.

The five large refiners have produced from 91.5 to 97.1 per cent of the total quantity of gasoline and engine distillate produced in California from 1916 to 1919, and there was very little variation in the proportion during the period. Their production of kerosene varied from 94.9 to 98.3 per cent, while their proportion of fuel and gas oil declined from 97.1 per cent in 1916 to 88 per cent in 1918 and 89.1 per cent in 1919. The percentage of lubricants produced by the five large refiners fluctuated greatly from year to year; the highest per cent was in 1918, when 95.4 per cent was produced by them, while in 1917 they produced only 55.8 per cent. The large refiners showed a larger percentage of other products and refinery loss in 1916 than in any other year and the lowest percentage in the last two years.

As already pointed out, the percentages of the different products secured from the refinery operations for a given year do not necessarily indicate that the same percentages would be secured from the same quantities of crude petroleum of identical quality during some other year, as the percentages obtained are influenced to a considerable degree by demand and price considerations. The following table shows the yields obtained by four of the five large refining companies in California for the first half of 1919; a similar table (Appendix Table 49) for the same companies is shown for the years 1916–June 30, 1919.

TABLE 70.—*Percentage of principal products obtained from California crude petroleum by four large refining companies, first six months, 1919.*

Product.	Company—			
	A	B	C	D
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
Gasoline	14.26	5.01	11.15	10.60
Engine distillate	7.31	1.62	2.51	4.85
Kerosene	.53	6.80	12.79	2.39
Fuel oil and gas oil	71.98	79.05	65.90	72.77
Lubricating oil		2.15	2.97	.47
Asphaltum			1.65	2.21
Other products	4.07	5.70	.56	3.25
Refining loss	1.33	1.95	2.44	3.41
Total	100.00	100.00	100.00	100.00

Company C shows a much higher percentage of gasoline from 1917–June 30, 1919, than for 1916, while if engine distillate, which is

also a motor fuel, be included the increase in the later years is still greater. The percentage of kerosene produced varied greatly from year to year, while the totals for gasoline, engine distillate, and kerosene combined were larger the last two and one-half years than during 1916. The percentage of lubricating oils increased steadily from 1916 to 1918, at which time it was almost twice as great as for the earlier year. The first half of 1919 showed a decline as compared with 1918, but the percentage was higher than for any year prior to 1918. The percentage of fuel oil and gas oil was slightly smaller in 1918 and for the first half of 1919 than for the earlier years. The refinery loss shows an increase from 1.64 per cent in 1916 to 2.44 per cent in 1919.

Company A increased its percentage of gasoline from 7.17 per cent in 1916 to 14.88 per cent for the first half of 1919. This represented slightly more than a twofold gain, while during the same time the proportion of engine distillate produced was greatly increased. The percentage of kerosene produced by this company was very small throughout the entire period. The combined production of gasoline, engine distillate, and kerosene increased steadily throughout the period from 12.43 per cent to 22.72 per cent. The percentage of fuel-oil and gas-oil production decreased steadily after 1916, declining from 79.99 per cent in 1916 to 71.88 per cent for the first six months in 1919. The refinery loss fluctuated considerably from year to year, but for the period it increased from 0.73 per cent in 1916 to 1.33 per cent for the first six months of 1919.

Company D increased its percentage of gasoline production from 11.07 per cent in 1916 to 12.03 per cent in 1918, while during the first six months of 1919 it dropped back to 10.66 per cent. The percentage of engine distillate produced changed very little from year to year. This company's percentage of production of kerosene varied from 1.44 per cent to 2.38. The combined percentage of gasoline, engine distillate, and kerosene produced fluctuated from year to year without showing any marked change. The percentages of fuel oil produced annually fluctuated from year to year without showing any marked tendency toward an increase or decline. The refinery loss varied from 3.39 per cent in 1916 to 2.41 per cent for the first half of 1919.

The refinery yield statements for Company B show that the percentage of the production of gasoline has steadily increased from 3.3 per cent to 5.06 per cent for the first half of 1919, while the proportion of engine distillate produced has declined from 3.41 per cent in 1916 to 1.42 per cent for the first six months of 1919. The production of kerosene has been very erratic, varying from as high as 10.16 per cent in 1916 to only 0.6 per cent in 1918. The production of fuel and gas oil has fluctuated from year to year; 1918 shows the smallest percentage, viz, 72.33 per cent, while the first six months of 1919 show 79.05 per cent, which was the largest percentage for the period. The percentage of refinery loss increased steadily from 1.7 per cent in 1916 to 2.33 per cent in 1918, after which it declined to 1.96 per cent for the first half of 1919.

The percentage of the principal products produced by four of the large refining companies in California, as shown in Appendix Table 49, includes the operations of all of their plants. Some of the plants do not completely refine the crude petroleum; hence the variations in the percentages shown for the different companies are partly due

to the differences in the degree of completeness of the refinery operations and partly to the difference in the character of the crude petroleum refined.

Probably the nearest approach to the maximum yield of refined products which can be obtained from California crude petroleum under commercial operating conditions is shown by the operations of the large lubricating plants. There are four such plants in California, which are covered in detail by this report; these include the plants of the Standard Oil Co. (California) at Richmond and El Segundo, the Union Oil Co. of California's plant at Oleum, and the plant of the Shell Co. of California at Martinez.

Appendix Table 50 shows the percentage of the principal products obtained by these four companies at their most complete refineries for the period 1918–June 30, 1919.

PRODUCTION OF CASING-HEAD GASOLINE.—The total production of gasoline and motor spirits in California has been considerably augmented, especially in the last few years, by the production of casing-head gasoline. The term "casing head" has been applied to gasoline recovered from natural gas because it is extracted from the gas that comes from the casing head of oil wells. Petroleum from the oil fields is usually accompanied by more or less gas. As the gas from the casing heads of oil wells is usually "wet," the extraction of the gasoline serves a twofold purpose—it dries the gas, making it commercially useful and conserves the gasoline. A small percentage of gasoline is obtained by some companies from very wet gas by condensation, which consists of passing the gas through a coil of cooled pipe, permitting the condensed particles of gasoline to drop into a receiving tank. Practically all of the casing-head gasoline, however, is extracted in compression or absorption plants. These plants may be operated independently, but often a compression plant is operated in conjunction with an absorption plant. One large company described its casing-head operations of the two plants as "one continuous process." The gas is first treated in the compression plant, where a part of the gasoline is extracted and the gas is prepared for the absorption plant, where the remainder of the gasoline is absorbed into crude oil or heavy distillate to be distilled out immediately or to remain in the crude oil to be recovered in the regular refining process. After the gasoline is extracted the dry gas is taken into the gas pipe lines to be consumed by the company in operating its producing properties. The surplus dry gas, if any, above the company's own requirements is sold to gas distributors or consumers.

Some concerns market casing-head gasoline separately, either raw or blended with low-grade naphtha or kerosene distillate into blended gasoline, while others turn it into the oil pipe lines, thus mixing this very light gasoline with the crude petroleum for transportation to the refinery, where it is later recovered in the form of gasoline through the regular refining process.

Table 71 shows the number of operators and plants, the estimated quantity of gas consumed, and the quantity of casing-head gasoline produced in California from 1912 to 1919:

TABLE 71.—*Casing-head gasoline production in California, 1912–1919.*

Year.	Number of operators.	Number of plants.	Estimated volume of gas used.	Casing-head gasoline produced.
			Cubic feet.	*Gallons.*
1912 [1]	7	7	600,742,000	1,040,695
1913 [1]	12	14	2,436,445,000	3,460,747
1914 [1]	17	19	5,129,709,000	7,581,399
1915 [1]	18	20	8,006,888,000	12,835,126
1916 [1]	28	36	24,826,354,000	17,155,784
1917 [1]	45	49	45,351,247,000	28,817,604
1918 [1]	29	56	50,490,019,000	32,268,[illegible]
1919 [2]	29	[3] 50	.....	38,034,289

[1] Bulletin No. 176, U. S. Bureau of Mines, 1919.
[2] California State Mining Bureau, Summary of Operations, California Oil Fields, June, 1920.
[3] Approximate.

The growth in the number of operators, the number of casing-head plants, and the quantity produced has increased greatly since 1912. The production of casing-head gasoline in 1919 was over thirty-six times as great as in 1912. In 1916, the first year for which the Bureau of Mines compiled refinery statistics, the casing-head gasoline production for California was 4.1 per cent of the gasoline production of petroleum refineries in that State. The following year it increased to 6.6 per cent; in 1918 it was 8.3 per cent, while in 1919 it equaled 12.3 per cent of the refinery production.

Section 3. Cost of refining.

COMPANIES DISCUSSED.—Detailed data covering the refining operations of the five large refining interests in California were obtained from the books of the companies. This cost information was all obtained or verified by the Commission's examiners. Reports were obtained for the Associated Oil Co. and the Standard Oil Co. (California) for the period 1914–June 30, 1919, while similar information was secured from the Union Oil Co. of California beginning with 1915, and from the Shell Co. of California and the General Petroleum Corporation beginning with July 1, 1916, down to June 30, 1919.

CONSUMPTION OF CRUDE PETROLEUM.—The five large refiners named above refine most of the crude petroleum consumed by the refining industry of California. The following table shows the total quantity of crude petroleum refined in California, as reported by the United States Bureau of Mines, the quantity and percentage of that total consumed by each of the five large refiners and the combined quantity and percentage of the total refined for all five companies, 1916–June 30, 1919:

TABLE 72.—*Petroleum refined and proportion consumed by five large companies, 1916–June 30, 1919.*

Company.	1916		1917		1918		1919 [1]	
	Barrels.	*Per ct.*	*Barrels.*	*Per ct.*	*Barrels.*	*Per ct.*	*Barrels.*	*Per ct.*
Standard Oil Co. (California)	31,351,225	49.8	34,728,421	47.6	30,467,652	45.8	16,795,075	47.6
Union Oil Co. of California	9,373,898	14.9	9,670,421	13.2	10,924,546	16.4	5,534,002	16.5
Associated Oil Co	7,928,189	12.6	7,967,437	10.9	7,023,557	10.6	3,547,408	9.2
General Petroleum Corporation	[2] 2,934,877	[2] 4.7	6,608,191	9.2	5,815,527	8.8	2,872,813	8.1
Shell Co. of California	5,239,643	8.3	6,680,717	9.2	6,781,969	10.2	3,561,466	10.1
Total	56,832,830	90.3	65,745,187	90.1	61,013,251	91.8	32,310,823	91.5
Total, California [3]	62,950,127	100.0	72,949,725	100.0	66,464,980	100.0	35,315,398	100.0

[1] Last 6 months. [2] U. S. Bureau of Mines. [3] First 6 months.

The General Petroleum Corporation began operations in July, 1916; this accounts for its small percentage of the total refined in that year. The Standard Oil Co. (California), the Associated Oil Co., and the General Petroleum Corporation, show a smaller proportion of the total consumed during the first six months of 1919 than for the earliest full year's operations, while the Union Oil Co. of California and the Shell Co. of California show a larger percentage for the latter year. The combined refinery totals for the five large refiners show that they consumed about 90 per cent of the total for the State during 1916 and 1917, almost 92 per cent in 1918, and 91.5 per cent during the first half of 1919.

PROBLEMS INVOLVED IN COMPUTING THE COSTS.—There are three problems in connection with determining the cost of refining crude petroleum that involve an arbitrary decision, viz, (1) the cost at which crude petroleum is charged to the refinery for the highly integrated companies, (2) the amount of depreciation allowed, and (3) the method of allocating costs to the different products. In showing the cost of refining a barrel of crude oil only the first two problems are involved, while all three affect the result when costs for different products are shown.

Cost of crude.—The cost of the crude petroleum consumed is the largest element in the cost of a barrel of refined petroleum, and this element of cost becomes more important when its price is high. Each of the five companies for which refining costs are shown produces a large percentage of the crude petroleum consumed by its refineries and purchases the remainder at current market prices. There are two methods of computing the cost of the crude petroleum for refining companies producing part of their consumption, viz, (1) at the actual cost of the crude purchased or produced plus the actual cost of transporting it from the oil fields to the refinery, and (2) at the current market price plus transportation charges at the published tariff rates. The first method shows the true cost to the company of refining a barrel of crude petroleum.

The second method, as already stated, is to charge the crude to the refinery at the current market price of crude petroleum at the wells plus the published tariff rate of transportation. This method though not strictly cost to the company as a whole, puts refiners purchasing all or a large percentage of the crude refined by their refineries on the same basis, for comparative purposes, with refiners producing all or a large percentage of their refinery requirements.

The relative proportions of refinery requirements of crude petroleum produced and purchased vary with the different refiners and for different periods. Under this method of treating crude petroleum cost any profits or losses resulting from charging it to the refinery at the current market price plus transportation at tariff rates are reflected in the operations of the producing and pipe-line departments. There is another element of profit or loss resulting from the application of this method. Crude petroleum is produced or purchased and put in storage and the price frequently changes before it is drawn out to meet refinery requirements. Such profits or losses accrue to the department holding the storage, which for most companies is the pipe-line department. This method makes it practicable to compare the departmental activities of the integrated companies with the operations of smaller companies.

Depreciation.—The depreciation item is an important one and there was no uniform rate used by the different companies. The figures set up by the refining companies to take care of depreciation of their plants varied from 7½ per cent on the net book value of the plant to 5 and 10 per cent on the gross plant investment. This variation in so important an item in the cost of refined products made it desirable to set up an arbitrary figure and apply it uniformly to all plants. The following table shows the value of the total gross plant and equipment (excluding land), the amount of depreciation charged by the companies representing all refineries operated by the five large refining interests in California, and the average rate of depreciation from December 31, 1914, to June 30, 1919:

TABLE 73.—*Refinery investment, depreciation, and rate of depreciation for five large refining companies, 1914–June 30, 1919.*

Year.	Gross refinery investment.	Depreciation charged by companies.	Rate per annum.
			Per cent.
1914	$16,477,185.81	$607,983.44	3.6
1915	21,364,479.98	820,207.07	3.8
1916	27,240,436.39	1,142,382.08	4.2
1917	30,783,275.13	1,404,747.88	4.6
1918	35,208,984.56	1,600,218.55	4.5
1919[1]	37,209,222.08	899,638.64	4.9

[1] June 30.

In order to determine a depreciation figure which would take care of the actual depreciation of the refinery investment, it would be necessary to depreciate each item of the equipment separately, such as buildings, stills, condensers, agitators, boilers, engines, tanks, pipe, fittings, machine shop, and loading racks. This would require a complete analysis of each refinery and a determination of the probable life of each class of equipment. Such a minute revision of depreciation is not practicable in an investigation of this character, and the Commission has adopted an arbitrary rate of 5 per cent per annum on the gross plant investment excluding land. While this rate is lower than that set up by some of the refiners, it is slightly higher than the average rate actually charged by all the companies.

It is believed to be an ample provision for the depreciation of well-constructed refining plants which are assured of an adequate supply of crude petroleum for a long period of time.

Cost of specific products.—There is no method by which an entirely satisfactory unit cost can be computed for each of the numerous products that are obtained from a barrel of crude petroleum. The difficulty in computing a fairly satisfactory cost for each product is chiefly due to two facts: (1) Because it is difficult to assign to each product its just proportion of the cost of the raw material—crude petroleum—which is the largest single item of cost; and (2) because the refining processes are continuous and there is an interrelation between these processes and between the products secured therefrom.

Several methods of showing a cost for different petroleum products have been used, as for example: (1) By application of the average cost per gallon for all products to each particular product produced; (2) by determination of a specific cost for each product by charging each with its proportion, based on the quantities produced, of the cost of crude petroleum and general expenses, to which is added the proportion of the actual cost of the refinery operations required for the production of each particular product; (3) by making use of a by-product cost method to obtain the cost of the main product, as gasoline, all other products being treated as by-products. By this method the total cost of all products is first obtained and then the total net receipts from by-products are deducted therefrom. The resulting cost is the total cost of the main product. The cost per gallon is then readily obtained by applying the gallons produced; (4) by allocating costs to the particular products on the basis of sales value.

Each one of the methods outlined above is open to some criticism. The first method which applies the average cost of all products to each product is unsatisfactory because it shows a very large margin of profit on the high-priced products, while a loss is usually shown on those products sold at a low price per gallon. The cost obtained by the second method is also unsatisfactory because it gives the lowest cost for gasoline, while the highest cost is shown for residuum, which is usually sold at a low price. The by-product method shows a very low cost for the products selected as main products. The last method, which allocates cost on the basis of sales value, charges to the higher priced products a larger proportion of the cost of the raw material and other expenses than are charged to the lower priced products. This method, like the other three, is open to criticism. Whenever the price of one product increases or declines out of proportion to the price changes for other products, the cost of a particular product may by this method show an increase due to a change in prices, even though the general cost level has declined. This is due to the fact that the factors which affect cost differ from those influencing price.

While it is not possible to devise a method that is entirely satisfactory, it is desirable to select the method which is least objectionable and that is considered fairly accurate by experienced petroleum refiners. In 1917 conferences were held with representatives of the petroleum refining industry, and the fourth method enumerated above, that of allocating costs to the different products on the basis of sales value, was adopted. The costs at that time were being obtained with a view

to considering what prices would be reasonable for the several pro
ucts. It was recognized by the Commission and by the represent
tives of the petroleum refining industry that any method of dete
mining the cost of the several petroleum products is arbitrary, b
it was generally agreed that this method was superior to any oth
for this purpose. This is the method used in this report.

COMPANIES' COSTS NOT COMPARABLE.—As already stated, the Co
mission obtained data covering the cost of refinery operations for t
five largest refining companies operating in California. This info
mation was secured from their records or checked with them by e
aminers of the Commission. Such costs were obtained for t
Associated Oil Co. and the Standard Oil Co. (California) from 191
to June 30, 1919; for the Union Oil Co. of California from 1915
June 30, 1919; for the Shell Co. from the beginning of 1916 to Ju
30, 1919; and for the General Petroleum Corporation from July
1916, to June 30, 1919.

The refining costs obtained from the different companies are n
strictly comparable because the companies do not have a unifor
policy as to the price at which the crude petroleum which the
produce is charged to the refinery. The Standard Oil Co. (Califo
nia), the Union Oil Co. of California, and the Associated Oil C
charged the crude petroleum they produced to their refineries at th
posted market price at the wells plus transportation charges at tari
rates. This policy gives the producing and pipe-line departmen
the same profit they would obtain for sales to or transportatio
service for outside concerns. Moreover, the rates for depreciatio
charged by the several companies are not the same. The Standar
Oil Co. (California) charges 7½ per cent for depreciation on the ne
investment, which for the period covered was equivalent to less tha
4 per cent on the gross investment, while the other three companie
charge 5 or 10 per cent on the gross investment.

REVISION OF COSTS.—The Commission has revised the costs
refinery operations, as shown by the books of the companies, i
two particulars, first, a uniform rate for depreciation of 5 per cen
on the gross refinery investment as shown by the books of the com
panies has been used instead of the amounts charged by the com
panies (see p. 180), and second, the cost of the crude petroleu
refined which was produced by each company has been charge
at the cost of production plus the cost of transportation instead o
the current market price plus transportation at tariff rates. Th
revision of depreciation places the companies on a uniform basis i
this respect, while charging the crude petroleum at cost of produc
tion plus cost of transportation eliminates interdepartmental profit

The Commission's revision of depreciation to 5 per cent per annu
on the gross plant investment decreased this charge for all of th
companies excepting for the Standard Oil Co. (California). Th
crude petroleum purchased by each company has been charged a
the purchase price plus cost of transportation. This revision of th
cost of the crude petroleum has resulted in a material reduction i
the cost of this item for each company.

Appendix Table 51 shows the total quantity of crude and pur
chased oils run, the cost to the companies delivered at the refinery
the refinery operating expense, general and administrative expense
and depreciation for all companies combined for 1914 to June 30,

1919. This table shows the cost as determined by the Commission, the cost as reflected on the books of the companies, and the difference between the two.

During 1916, the first year all five companies operated, they consumed 57,583,323 barrels of oil, at a cost delivered to the refineries of $33,787,265, while in 1918 the same companies consumed 62,245,140 barrels of oil, which cost the companies delivered $55,486,977. The cost above materials, including general and administrative expenses and depreciation, amounted to $8,731,951 in 1916 and $16,580,711 in 1918. For the first six months of 1919 these companies consumed 32,850,104 barrels of oil at a delivered cost of $30,626,274. The total operating expense was $10,741,293.

COST PER BARREL.—The most satisfactory unit on which to compute the cost of a product ordinarily is the sales unit. However, there is no uniform sales unit for the products obtained from a petroleum refinery, and the barrel of 42 gallons has been selected as the best unit on which to compute refinery costs. This unit is used in the purchase and sale of crude petroleum and for transactions in such refinery products as fuel oil and road oil; while such products as gasoline and kerosene are sold by the gallon, paraffin wax is sold by the pound, and asphalt is sold by the ton. It is evident that there is no uniform sales unit for refinery products, while there is a uniform unit used for transactions in crude oil, which unit also finds considerable use in commerce in refined products. A barrel of 42 gallons of crude oil is run through a refinery and several products, each of a different commercial value, are obtained in the process. Some of the products can be sold for several times the cost of an equal quantity of crude oil, while others are sold for no more and some for even less than the cost of an equal quantity of the raw material. A barrel of oil is refined and only about 41 gallons of finished products are recovered, the remainder being designated as refinery loss. The cost of the 42-gallon barrel of crude, as well as the total operating cost per barrel, must be absorbed by the receipts from the sale of the finished products recovered.

The cost delivered at the refinery of oils consumed, the cost above raw materials, and the total refining cost per 42-gallon barrel of oil run for each of the five large companies, and the total for all companies combined annually, 1914 to June 30, 1919, is shown in the following table:

TABLE 74.—*Refining cost of five large companies, per barrel of 42 gallons, 1914–June 30, 1919.*

Year.	Company A.			Company B.			Company C.		
	Crude oil cost per barrel.	Cost above material per barrel.	Total cost per barrel.	Crude oil cost per barrel.	Cost above material per barrel.	Total cost per barrel.	Crude oil cost per barrel.	Cost above material per barrel.	Total cost per barrel.
1914	$0.702	$0.067	$0.769	.....	.....	.....	$0.531	$0.168	$0.749
1915	.597	.059	.652	.....	.....	.....	.532	.142	.674
1916	.790	.056	.845	$0.453	$0.149	$0.602	.546	.189	.735
1917	1.083	.087	1.170	.462	.144	.606	.719	.258	.977
1918	1.223	.123	1.346	.725	.183	.908	.784	.371	1.155
1919[1]	1.492	.139	1.631	.785	.197	.950	.960	.443	1.303

TABLE 74.—*Refining cost of five large companies, per barrel of 42 gallons, 1914–June 30, 1919*—Continued.

Year.	Company D.			Company E.			Total.		
	Crude oil cost per barrel.	Cost above material per barrel.	Total cost per barrel.	Crude oil cost per barrel.	Cost above material per barrel.	Total cost per barrel.	Crude oil cost per barrel.	Cost above material per barrel.	Total cost per barrel.
1914							$0.396	$0.155	$0.751
1915							.580	.138	.698
1916	$0.631	$0.138	$0.769	$0.577	$0.061	$0.638	.586	.152	.738
1917	.765	.164	.929	.713	.092	.807	.747	.195	.942
1918	.906	.192	1.100	1.036	.135	1.171	.892	.266	1.158
1919[1]	.943	.271	1.214	.934	.137	1.071	.932	.327	1.260

[1] First six months.

This information is given in detail, with index numbers based on the first year as 100, in Appendix Table 52, showing the relative increase in each item of cost.

The cost of refinery operations, i. e., the cost above material, increased for each company during the period. Such costs for company A increased 106 per cent from 1914 to June 30, 1919, those for company C increased 165 per cent during the same time, company D shows an increase of 96 per cent from 1916 to June 30, 1919, the costs of company B increased 32 per cent from 1916 to June 30, 1919, while those for company E showed an increase of 124 per cent from 1916 to June 30, 1919.

There is a wide variation in the refinery operating expenses for the different companies. Company C had the highest cost per barrel for the entire period, except in 1916, when company D had the highest cost. This is to be expected, as these companies operate very complete refineries.

The general and administrative expense increased greatly for each company throughout the entire period. Company C had by far the highest cost per barrel for general expense, company B was second highest each year for which its costs are shown, except in 1918, while company A shows the lowest cost for this item of expense.

Company C, on account of the completeness of its refineries, shows a much higher per barrel cost for depreciation than any other company throughout the entire period. The depreciation for company B is second highest per barrel refined throughout the period. The depreciation cost per barrel for company D and company A are practically the same each year except during the first six months of 1919, when the latter company was operated very much under its capacity, which greatly increased its depreciation cost per barrel refined.

Generally there was an increase in the cost of the crude petroleum beginning with 1916; this increase coincides with the trend of the cost of producing crude petroleum and with market prices for the crude. Fluctuations for individual companies, as for example company C, are the result of varying proportions of its own production and purchased oils run.

In 1916 some of the companies drew large quantities of crude petroleum from storage, which had been accumulated during years

of low crude prices, and as the cost of this quantity was comparatively low it reduced the general average to the lowest figure for the entire period except 1915.

The great difference shown by the several companies in the average cost of the crude petroleum run is largely due to differences in the proportions of the total refined which were produced and purchased. Differences in the cost of production of crude petroleum for different companies, differences in cost of transportation, and variations in the proportions drawn from storage were additional factors causing variations between the companies in the cost of the raw material refined. For example, company A shows the highest cost for crude and purchased oils refined in each year.

The difference in this item of cost for company A was greatest in 1919, when it was 58 per cent above that for the next highest company. This higher cost of crude for this company was due to the fact that from 1914 to June 30, 1919, this company purchased from 67 to 86 per cent of the crude run through its refineries. During the first half of 1919 it purchased considerable quantities of tops, i. e., unfinished naphtha and kerosene distillates and casing-head gasoline, which were mixed with crude in the field and transported to its refineries. These products are high priced and largely account for the higher cost of the crude and purchased unfinished oils run in that year.

The chief item in the cost of refined petroleum products is the raw material—crude petroleum. The other items are classified by the Commission as refinery operating, general and administrative, and depreciation. The raw material cost is the cost of crude petroleum and purchased unfinished oils delivered to the refineries, including basic costs plus handling and transportation charges. The refinery operating cost includes such items as labor, fuel, power, and steam, materials and supplies, maintenance, and repairs. General and administrative expense includes refinery office salaries and expenses, property taxes, insurance, royalties for the use of patented processes, general works expense, shipping expense, and the refinery pro rata of general office expense.

The percentage each element bears to the total cost of running a barrel of crude petroleum, as computed by the Commission, from 1914 to June 30, 1919, is shown in the following table:

TABLE 75.—*Proportion of items in cost of a barrel of refined petroleum, for five large companies, 1914–June 30, 1919.*

Item.	1914	1915	1916	1917	1918	1919[1]	Average.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Crude and purchased oils	79.4	80.2	78.4	79.3	77.0	74.9	78.1
Operating	13.5	12.7	12.7	12.8	14.7	17.7	14.0
General and administrative	4.1	3.9	4.7	4.5	5.9	4.1	4.3
Depreciation	3.0	3.2	4.3	3.4	2.4	3.2	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[1] First 6 months.

The crude and purchased oils refined constituted from about 74 to over 80 per cent of the total costs, while the refinery operating expense varied from 12.7 to 17.7 per cent of the total. Depreciа-

tion is the only item that shows a much lower percentage during the later years.

The relative importance of the cost of the raw material—crude petroleum—of refinery operating expense, and of the general expense and depreciation combined is graphically shown in Chart II, opposite.

ANALYSIS OF OPERATING COST.—As already shown, the most important item of refining cost is the cost of the raw material—crude oil—while the refinery operating cost during the period 1914–June 30, 1919, constituted only from 12.7 per cent to 17.7 per cent of the total cost per barrel. It is apparent that a small increase in the cost of any of the items which are included in the cost of operating a petroleum refinery can not have a great effect on the total cost of refining a barrel of crude oil. The following table gives an analysis of the refinery operating expense and shows the combined actual cost per barrel refined, of labor, fuel, power, and steam, material and supplies, maintenance and repairs, and the total operating expense, together with the index numbers, based on 1914 as 100, for each item, for the five large refining companies in California, 1914 to June 30, 1919:

TABLE 76.—*Importance of items in refinery operating expense, per barrel, for five large companies, 1914–June 30, 1919.*

Year.	Labor.		Fuel, power, and steam.		Material and supplies.		Maintenance and repairs.		Total refinery operating.	
	Cost per barrel.	Index No.	Cost per barrel.	Index No.	Cost per barrel.	Index No.	Cost per barrel.	Index No.	Cost per barrel.	Index No.
1914	$0.012	100	$0.035	100	$0.048	100	$0.009	100	$0.102	100
1915	.016	139	.029	84	.036	78	.008	85	.089	87
1916	.020	160	.030	86	.035	77	.009	94	.094	92
1917	.023	195	.039	113	.046	100	.013	130	.120	118
1918	.033	274	.060	174	.058	127	.019	209	.170	167
1919 [1]	.046	374	.066	191	.069	195	.021	230	.222	218

[1] First 6 months.

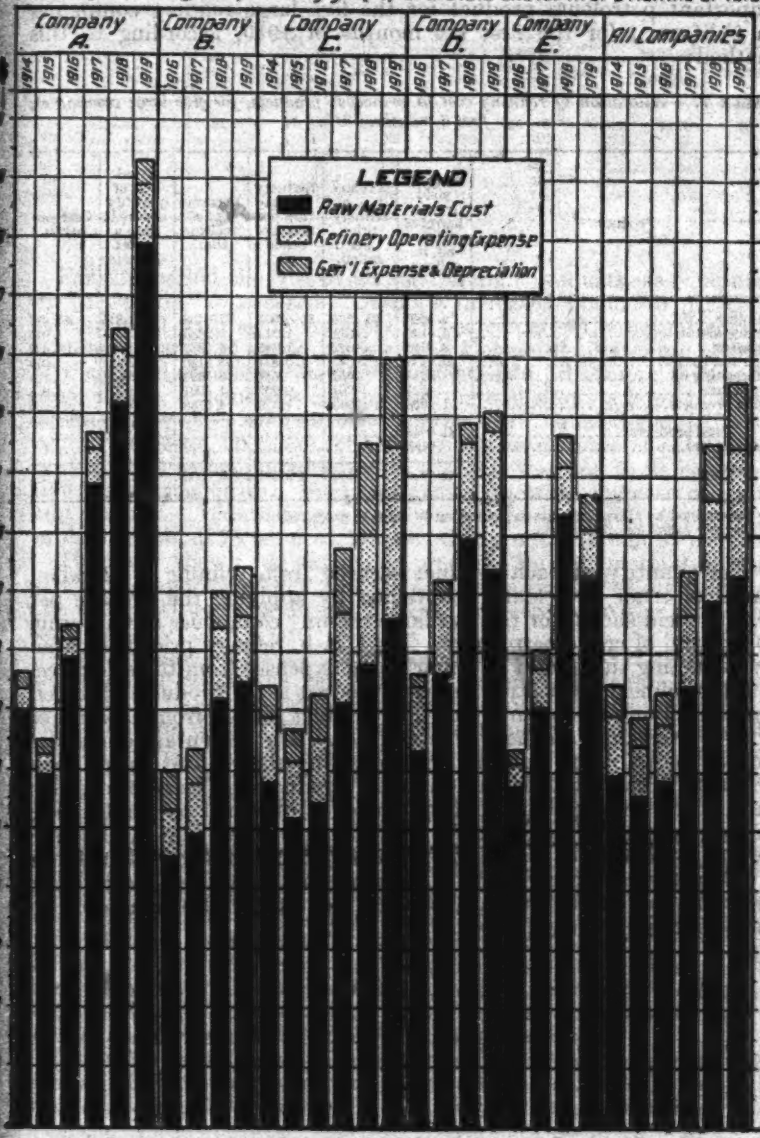
The cost of material and supplies is the largest single item and constitutes from about 30 to 40 per cent of the total refinery operating expense, fuel, power and steam are next in importance, constituting approximately from 30 to 35 per cent of the total. The refinery labor is relatively small and for most years was less than 20 per cent of the refinery operating expense; that is, the refinery labor item constituted only from 1.6 to 3.7 per cent of the total cost of refining a barrel of crude petroleum in California during the period 1914–June 30, 1919.

ALLOCATION OF COSTS TO PRODUCTS.—As already stated, there is no method by which an entirely satisfactory cost can be computed for the different refined petroleum products. However, it is highly desirable to show the cost per product according to the best method available. The Commission has adopted the method of allocating costs to the various products on the basis of sales value. This method, as already stated, was generally approved by representatives of the petroleum refining business, as the fairest and most satisfactory

CHART II.

COST OF CRUDE OIL, REFINERY OPERATING EXPENSE, GENERAL EXPENSE AND DEPRECIATION PER BARREL IN REFINING CRUDE PETROLEUM

for 5 large Refining Companies by years, 1914 to 1918 and for first 6 months of 1919.



method of computing such a cost for the purpose of considering the reasonableness of prices.

This method of allocating the cost elements to the different products shows the highest cost for the most valuable and the lowest cost for the lowest priced product, and gives to each the same percentage of profit or loss. Table 77 shows the combined cost of each important petroleum product for the five large refining companies in California, for the first six months of 1919, according to this method:

TABLE 77.—*Allocation of refining cost to principal products, for five large companies, first 6 months, 1919.*

Product.	Average yield from a barrel of crude oil, in gallons.	Average f. o. b. refinery price per gallon.	Refinery realization per barrel of crude oil.	Percentage of realization.	Total cost of quantity secured from a barrel of crude oil.[1]	Cost per gallon.
Gasoline	4.1496	$0.1516	$0.62908	27.6408	$0.3481	$0.084
Engine distillate	1.4196	.0811	.11513	5.0586	.0637	.045
Kerosene	3.0240	.0522	.15785	6.9357	.0874	.029
Fuel and gas oil	29.9166	.0347	1.03831	45.6130	.5744	.019
Lubricating oil	.9282	.3052	.19047	8.3690	.1054	.114
Asphaltum	.4536	.0707	.03207	1.4091	.0177	.039
Other products	1.1928	.0949	.11320	4.9738	.0626	.053
Total products	41.0844					
Refining loss	.9156					
Total	42.0000	.0542	2.27591	100.0000	1.2593	[2] .031

[1] Determined by allocating costs in proportion to value of products.
[2] Cost per gallon for all products.

The quantity of each product secured from refining a 42-gallon barrel of crude petroleum is obtained by applying the average per cent of yield shown for the five large refining companies in California to a barrel of crude petroleum. The f. o. b. refinery price is secured by deducting the freight and marketing expenses from the sale price, and the refinery realization for each product is the products obtained by multiplying the quantity of that product refined from a barrel of crude by the f. o. b. refinery realized price. The percentage of realization is the quotient resulting from dividing the realization for each product by the total realization for all products. The total cost for each of the principal products produced is obtained by multiplying the total cost of refining a barrel of crude petroleum—that is, $1.259—by the percentage of realization for each product, as shown in column 4; while the cost per gallon for each product is secured by dividing the total cost of the quantity secured from a barrel of crude oil by the quantity produced.

The cost per product as obtained by the above method for the five large refining companies operating in California, from 1914 to June 30, 1919, is given in Table 78.

TABLE 78.—*Cost of principal petroleum products, based on sales realization, for 5 large companies, 1914–June 30, 1919.*

Year.	Gasoline, per gallon.	Engine distillate, per gallon.	Kerosene, per gallon.	Fuel and gas oil, per barrel.	Lubricating oils, per gallon.	Asphaltum, per gallon.	Other product, per gallon.	Actual cost, per barrel.
1914	$0.060	$0.022	$0.025	$0.408	$0.106	$0.022	$0.029	$0.751
1915	.052	.031	.028	.395	.102	.023	.023	.686
1916	.079	.032	.023	.328	.078	.018	.031	.736
1917	.088	.027	.027	.445	.091	.022	.042	.942
1918	.063	.038	.027	.630	.093	.028	.049	1.158
1919[1]	.064	.045	.029	.806	.114	.038	.058	1.229

[1] First 6 months.

For this period the cost of all the different products, as computed by this method, increased. Gasoline increased about 40 per cent, as compared with approximately 68 per cent for the actual cost of refining a barrel of crude petroleum. Engine distillate, on account of the greatly increased demand, advanced in price more than most other products; hence its cost by this method shows a large increase, which during the period 1914 to June 30, 1919, equaled about 105 per cent. Kerosene, on the other hand, shows an increase of only 16 per cent in 1919 as compared with 1914. This was due to its comparative stability of price. Fuel and gas oil show an increase of about 100 per cent. Lubricating oils show an increase of only 8 per cent, asphaltum about 73 per cent, and all other products about 83 per cent.

The costs shown for particular products by this method are not strictly comparable from year to year, because the selling prices of the different products do not increase or decrease in the same proportion.

COSTS BASED ON CRUDE AT MARKET PRICE.—In the preceding presentation of costs, the raw material—crude petroleum—has been included at its cost to each company. In other words, all profit to the producing departments have been eliminated for that portion of the crude refined which was produced by the refining company, and the profits to the pipe lines owned or controlled have also been deducted. This gives the actual cost for the highly integrated companies. As already shown, there are 21 smaller refiners in California, some of which have no crude production and have to transport their crude to their refineries largely by rail in tank cars. Such refiners operate at a decided disadvantage when in competition with other refiners who have their own pipe-line facilities and produce a large part of their requirements. Moreover, in the case of a company having its own production and pipe lines, where it is desirable to show departmental earnings, it is necessary to charge the company's own production to the refining department at the market price of crude plus the regular tariff rate of transportation.

Table 79 shows a comparison between computed cost of refining crude petroleum per barrel for the five large refining companies in California combined, with crude petroleum computed at market price

plus the tariff rate for pipe-line transportation, and the actual cost of refining crude petroleum, 1914–June 30, 1919:

TABLE 79.—*Comparison of the computed cost of refining crude petroleum with the crude charged at market price and pipe-line transportation tariff rates, with the actual cost for five large companies, 1914–June 30, 1919.*

Year.	Refining cost with crude at market and transportation charges at tariff rates.	Actual refining cost.[1]	Difference in cost.	Percentage of difference.
1914	$0.904	$0.751	$0.243	32.2
1915	.838	.698	.140	20.0
1916	1.092	.739	.344	46.6
1917	1.428	.942	.486	51.5
1918	1.794	1.158	.636	54.9
1919[2]	1.951	1.259	.692	54.9

[1] Table 78. [2] First 6 months.

The computed refining cost for the Associated Oil Co., the Standard Oil Co. (California), and the Union Oil Co. of California for the entire period, and the Shell Co. of California for the first six months of 1919, are computed from figures submitted by the companies. In determining the computed refining cost for the Shell Co. of California for the years 1916–1918, the Commission has used the average price paid for crude petroleum purchased by other companies, aggregating from 1,000,000 to 1,500,000 barrels per year of crude from the fields from which the Shell Co. of California secured its supply. The market price of crude petroleum consumed by the General Petroleum Corporation for the period 1916–1919 is based on purchases by other companies of from 2,750,000 to 4,000,000 barrels per year of the grade of crude used by this company.

The final column of the above table shows the per cent by which the average refining costs of these companies would have exceeded their actual cost had they purchased all of their refinery requirements of crude petroleum at the current market price and paid the regular tariff rates for pipe-line transportation. The average refining cost per barrel of crude petroleum run would have varied from 20 per cent in 1915 to 55 per cent in 1919 higher than the actual average cost had these companies been required to purchase all of the crude oil at the posted market price and paid the regular tariff rates for pipe-line transportation. Individual companies included in the above averages would have had a cost ranging as high as 128 per cent above their actual cost had they no production or pipe-line facilities of their own.

The combined results for all five companies emphasize the tremendous handicap any refiner without crude petroleum production and adequate pipe-line facilities would encounter in attempting to become a factor in the Pacific coast market. Even with a considerable production of crude petroleum such a refiner would probably be unable to survive unless there were a considerable reduction in pipe-line rates and his refinery were near the oil fields and the consuming markets. (See Ch. VII.)

Section 4. Refinery realizations.

As already shown, the five large integrated companies refined from almost 90 to about 92 per cent of all the crude petroleum refined in California during the period covered by this report. (See p. 179.) Hence the quantity of refinery sales and the amount realized therefrom, f. o. b. refinery, and the average refinery realization per gallon are of particular interest. Appendix Table 53 shows the quantity and amount of the combined sales, f. o. b. refinery, and the average realization per gallon for the five large refiners in California. The average f. o. b. refinery realization is shown in the following table:

TABLE 80.—*Combined average f. o. b. refinery realization per gallon for petroleum products sold by five large companies, 1914–June 30, 1919.*

Product.	1914	1915	1916	1917	1918	1919[1]
Gasoline	$0.091	$0.075	$0.142	$0.158	$0.158	$0.152
Engine distillate	.033	.044	.058	.055	.072	.081
Kerosene	.038	.040	.050	.049	.051	.052
Fuel oil	.015	.014	.014	.019	.028	.035
Gas oil	.018	.020	.024	.030	.047	.048
Lubricating oil	.161	.148	.141	.163	.176	.205
Asphaltum	.033	.033	.033	.040	.053	.071
Other products	.043	.034	.055	.076	.093	.095
Average	.024	.022	.029	.038	.060	.057

[1] First 6 months.

In the table above the amount received for the different quantities sold has been reduced to an f. o. b. refinery basis by deducting freight, marketing costs, and all other expenses incurred in the distribution of the various petroleum products. For all products except fuel oil the quantities shown above represent the bulk of such sales in the Pacific coast territory. Large quantities of heavy low-grade crude petroleum are sold for fuel purposes without refining; hence the quantities represent a much smaller proportion of this product than for the other products shown.

The amount received f. o. b. refinery increased much more from 1914 to 1918 than the increase in quantity. The increase in quantity was about 75 per cent, while the amount realized increased about 270 per cent. The refinery realizations in 1914 and 1915 were unusually low, due to depressed conditions in the industry resulting from a large over-production of crude petroleum, while during 1917 and 1918 the large demand for war purposes led to increased prices.

The average f. o. b. refinery realization for gasoline increased from 9.1 cents per gallon in 1914 to almost 15.8 cents in 1918, and then declined to 15.2 cents for the first half of 1919. This represents an increase of about 74 per cent for the former years and 67 per cent for 1919. Engine distillate increased from 3.3 cents per gallon in 1914 to 8.1 cents in 1919, which represents an advance of 145 per cent. The large demand for engine distillate as a motor fuel for farm tractors was the principal factor in causing this large increase. The comparatively low per gallon realization for kerosene was due to the fact that most kerosene was sold for export shipments at very low prices, the increase from 1914 to June 30, 1919, being about 37 per cent. The average f. o. b. refinery realization per gallon for fuel oil increased almost 133 per cent from 1914 to June 30, 1919; much of

this increase occurred in 1919. The large demand for bunker purposes was the chief cause of this large increase. Gas oil also shows a large increase; in 1914 the f. o. b. refinery realization was only 1.8 cents per gallon, while it increased to 4.8 cents for the first half of 1919, or a 167 per cent advance. The per gallon realization for lubricating oils began to increase slightly in 1916 and by June 30, 1919, it was 27 per cent higher than in 1914. Asphaltum and "Other products" increased 115 per cent and 121 per cent, respectively, from 1914 to the middle of 1919.

Section 5. Refinery investment.

INVESTMENT AS OF DECEMBER 31, 1919.—The gross plant investment in refineries on December 31, 1919, for the five large refining companies in California, as shown by their books, was $47,076,548. This total represents the actual cost of the original refining plants plus the cost of additions and betterments made from time to time. The reserve for depreciation, as shown by the companies' books, amounted to $11,566,957 on December 31, 1919, leaving a net plant investment of $35,509,591. The fixed refinery investment on December 31, 1919, for each of the five companies, as shown by their books, is given in Table 81:

TABLE 81.—*Investment in refineries, for five large companies, as shown by their records, Dec. 31, 1919.*

Company.	Gross investment.	Depreciation.	Net investment.
Standard Oil Co. (California)	$30,594,907.07	$7,808,982.29	$22,785,924.78
Union Oil Co. of California	7,198,375.16	1,208,999.41	5,989,375.75
Shell Co. of California	4,517,617.54	1,479,832.66	3,037,784.88
Associated Oil Co.	2,835,204.69	916,544.20	1,918,660.49
General Petroleum Corporation	1,419,783.56	152,808.43	1,267,185.13
Total	46,565,888.02	11,566,957.01	34,998,931.01

The investment figures shown above include refinery sites and refinery plants and equipment, including receiving and storage tanks located at the refinery. In the case of the Standard Oil Co. (California) the investment in refinery property is large, as this company includes its investment in tank farms in its refinery plant account. The reason given by this company for the inclusion of their tank farm investment is because this storage equipment is used for the storage of crude petroleum to meet refinery requirements.

INVESTMENT FROM 1914 TO JUNE 30, 1919.—Information relative to the cost of refining crude petroleum was obtained for the years 1914 to June 30, 1919, and, in order to show the rate of earnings for the same period the refinery investment at the close of each year and for June 30, 1919, was secured. The Commission made an adjustment in the depreciation charge and the rate of 5 per cent was adopted in order to make the costs for the different companies more nearly comparable. The gross plant investment, the depreciation as charged by the companies, the Commission's depreciation adjustment, the net refinery working capital, and the net refinery investment, as shown by the companies' books and by the Commission, is given in Appendix Table 54.

The investment for the Standard Oil Co. (California), the Associated Oil Co., and the Union Oil Co. of California is shown for the entire period, while the earliest investment figures for the other two companies are for 1916. In 1917, the first year for which the investment for all five companies is shown, the gross investment was $35,251,588 and the net investment after deducting 5 per cent depreciation was $27,275,036. By June 30, 1919, the gross investment had increased to $43,269,430 and the net investment to $32,142,456. This represents an increase of about 23 per cent in the gross investment and about 18 per cent in the net investment.

The large investment of the Standard Oil Co. (California) is indicative of its importance in the refining business of California. During the period 1914–June 30, 1919, its gross refinery investment increased from $16,961,519 to $29,441,627, an increase of almost 74 per cent. In 1916 and 1917 the gross refinery investment for the Standard Oil Co. (California) was 70 per cent of the total for all five companies, in 1918 it was 69 per cent, and on June 30, 1919, 68 per cent of the total.

The net working capital represents inventories of crude and refined oils, inventories of other materials and supplies, cash, accounts and notes receivable, from the total of which have been deducted the sum of accounts and notes payable, and accrued liabilities. These items were prorated to the various departments, such as oil producing, pipe lines, marine, refining, and marketing by the companies themselves, at the request of the Commission. The net working capital of the Standard Oil Co. (California) forms a much larger proportion of its total refinery investment than that for any other company. This is due partly to its large stocks of finished and semifinished products and partly to the fact that this company carries its entire crude oil stocks in the refining department.

The refinery investment of the Standard Oil Co. (California), as has already been pointed out, includes the investment in tank farms and tank farm equipment. The tank farms are held for the storage of crude oil, and as the Standard sells no crude but holds it all for refinery requirements, it is contended that the tank farms are necessarily a part of the refinery equipment. The crude oil storage capacity for this company was at the end of 1919 approximately 40,000,000 barrels, and at least 75 per cent of this tankage was empty during 1919. The refinery requirements are about 35,000,000 barrels a year, or almost 3,000,000 barrels per month. The reserve crude petroleum held in storage in 1919 would have been sufficient to keep their refineries running at full capacity for about three and one-half months, if no crude were secured from other sources.

INVESTMENT PER BARREL ON RATED CAPACITY.—The refinery investment per barrel on the rated daily capacity of the plant varies greatly, depending upon the completeness of the refinery operations. By rated daily capacity is meant the quantity of crude petroleum which it is possible to run through a given plant in 24 hours. The refineries of California may be classified as follows: (1) Lubricating plants and (2) light-products plants. The lubricating plants are more complete refineries than the light-products plants and obtain a larger number of products than the light-products plants from a barrel of crude petroleum and a correspondingly smaller yield of re-

siduum or fuel oil. The refineries called light-products plants in California are called skimming plants in the Mid-Continent field. As the terms imply, such plants secure only a few light products, such as gasoline, kerosene, and high-grade distillates, from a barrel of crude petroleum, while their yield of residuum or fuel oil is large. Table 82 gives the location of the refinery, the gross refinery investment, the rated daily capacity, and the average investment per barrel for each plant operated by the five large refining companies in California, as of June 30, 1919.

TABLE 82.—*Gross plant investment and investment per barrel of rated daily capacity for lubricating and light products plants, June 30, 1919.*

Company.	Plant.	Gross plant investment.	Rated daily capacity.	Average investment per barrel.
			Barrels.	
Lubricating-oil plants:				
Standard Oil Co. (California)	Richmond	$15,884,080.41	60,000	$264.73
Do	El Segundo	7,009,422.79	35,500	251.25
Union Oil Co. of California	Oleum	2,647,966.69	22,000	120.36
Shell Co. of California	Martinez	4,175,534.54	30,000	139.18
Total		29,695,309.34	147,500	201.32
Light-products plants:				
Standard Oil Co. (California)	Bakersfield	940,208.05	20,000	47.01
Union Oil Co. of California	Avila	867,324.80	17,000	51.02
Do	Maltha	226,565.34	4,000	56.64
Do	Santa Paula	22,741.43	500	45.48
Do	Brea	816,838.13	10,000	81.68
Associated Oil Co.	Avon	1,330,620.41	22,000	60.48
Do	Gaviota	882,860.39	16,000	55.18
General Petroleum Corporation	Vernon	1,244,812.62	20,000	62.24
Shell Co. of California	Coalinga	85,805.26	2,000	42.90
Total		6,949,372.23	104,500	66.50

As already stated, the investment per barrel differs greatly for the two types of plant, and, as shown above, it varies widely for the same type of plant, depending upon its degree of completeness and the character of its equipment. The investment for lubricating plants varies from $120.32 per barrel to $264.40 per barrel. The plant of the Standard Oil Co. (California) at Richmond shows the highest investment per barrel, which is partly due to its investment in Burton Process pressure stills, enabling it to secure a higher percentage of gasoline.

The investment per barrel for the light-products plants ranges much lower than those having lubricating stills. This investment varies from $21.60 per barrel to $96.11 per barrel, while the average is $55.80, as compared with $201.28 for the four lubricating plants.

INVESTMENT PER BARREL OF CRUDE CONSUMED.—The investment per barrel of crude and unfinished oils run through a refinery furnishes a convenient unit for expressing costs, realizations, and earnings. Such investment, like that shown on the basis of the rated daily capacity, varied greatly for different plants and types of plants, depending upon their completeness, and it is also greatly affected by the percentage of capacity at which the plant is operated. Appendix Table 55 shows the net refinery investment, including working capital, the quantity of crude and purchased unfinished oils run per year, and the average investment per barrel run for the five large refining companies in California, 1914 to June 30, 1919.

The average per barrel of crude run has been computed on an annual basis; that is, in case of a six-month period, as in 1919, it has been assumed that the annual consumption would be double that for the half year. The investment is the net investment, including working capital, and, as a rule, the investment has increased faster than the consumption. The average for all five companies for 1916, the first year for which there are figures for all five, was about 85 cents per barrel. In 1917, owing to the large increase in the consumption, accompanied by a small increase in investment, the average fell to about 78 cents per barrel, while for 1918 it increased to 94 cents and by June 30, 1919, to almost 98 cents per barrel, this increase being due to decreased refinery runs.

The Standard Oil Co. (California) shows by far the largest investment per barrel. As already shown, this company has a large fixed investment and also a large working capital, which results partly from the fact that two of its refineries are large lubricating plants and that it makes use of Burton Process pressure stills, which require comparatively heavy plant investment, and partly to the inclusion of a large storage investment in its refinery plant account. In 1914 the average for this company was about $1.07, while by June 30, 1919, it had increased to almost $1.35 per barrel. The results for the different years are quite variable, depending on the relation between the increase in the investment and the quantity of crude and purchased unfinished oils consumed. In 1915 the investment per barrel decreased from about $1.07 in 1914 to about $1.04, and in 1917 there was a big decline as compared with 1916 from about $1.18 in the earlier year to about $1.07 in 1917. In both cases the consumption was very large as compared with the previous year, while the increase in investment was comparatively small.

The Shell Co. of California shows the second largest investment per barrel. The larger of its two refineries is a lubricating plant, and it has not operated its refineries to as high a percentage of capacity as have the other companies. Data for this company cover the years 1916 to 1919. The investment per barrel increased from 85 cents in 1916 to $1.04 in 1919. In 1917 there was a decline from 85 cents to 76 cents per barrel, which was due to a large increase in the quantity refined accompanied by a small increase in investment.

The Union Oil Co. of California shows a much lower investment per barrel than either of the other companies already discussed. This was due to the fact that during the period covered only one of its five plants was equipped to produce lubricants. During the five-year period the investment of this company increased 127 per cent, while its consumption was increased only about 44 per cent, resulting in an increase of 57 per cent in the investment per barrel refined.

The Associated Oil Co. shows a higher investment, including working capital in 1916, than for any other year. Its refineries are both light-products plants. Its consumption of crude petroleum increased rapidly from 1914 to the maximum in 1917. In 1918 there was a decline to less than the 1916 total, while that for the first half of 1919 indicated a still smaller consumption for the year. The investment per barrel run decreased steadily from about 37 cents per barrel in 1914 to about 27 cents in 1917. In 1918 there was a considerable increase as compared with the preceding year,

due to a falling off in consumption, accompanied by an increase i investment. The investment per barrel was larger for 1914 th for any other year except 1919.

The General Petroleum Corporation has a smaller investme per barrel run than any of the other large companies. This largely due to the fact that its plant produces only light produc and fuel oil. In 1916 the investment per barrel was only 10 cen the following year the investment increased 149 per cent, whi the consumption increased 115 per cent and the investment p barrel increased 115 per cent. In 1918 and 1919 the investme was further increased, while the quantity of crude oil consume declined from the 1916 total; hence there was a very large increa in the investment per barrel. From 1916 to 1919 the investme per barrel of crude run increased from 10 cents to almost 30 cen per barrel, which represented a gain of 200 per cent. Notwit standing this large increase in the investment per barrel, the Gener Petroleum Corporation's highest figure was lower than that for an other large company for each year excepting the Associated O Co. in 1917.

Section 6. Marketing investment.

TOTAL INVESTMENT.—The net investment, including worki capital, for the marketing equipment of the Standard Oil C (California), the Union Oil Co. of California, the Associated O Co., and the Shell Co. of California amounted to $38,478,932 December 31, 1916, the first year for which the investment for f four companies was obtained, and by June 30, 1919, it had increas to $53,536,867; this represents a gain of 39.1 per cent in only two ye one-half years. This investment covers the domestic marketi equipment in all of the States in which each company markets i products in the Pacific coast territory. (See Pt. II, Ch. II.) T General Petroleum Corporation sells practically all of its petroleu products, except fuel oil, f. o. b. refinery; therefore, this company h no investment in a marketing department. The fuel oil is sold i bulk, hence this company has a very small investment in marketi equipment. The gross and net marketing investment, depreci tion, net working capital, and net investment, including net wor ing capital, are shown in Appendix Table 56.

The figures in this table represent the investment in the marke ing equipment as shown by the books of the different companie with the exception that deferred charges have been eliminated the Commission. The net working capital was assigned to t marketing department by representatives of each company. T marketing investment covers the plant and equipment used storing, selling, and distributing refined products, and both t crude fuel oil and refinery residuum sold as fuel oil. It is impossi to show separately the investment used exclusively in distributi refinery products or that used in marketing crude fuel oil.

The combined net investment for the four companies, includi net working capital, increased throughout the period. This inve ment is shown for two companies in 1914, three in 1915, and four the remainder of the period. In 1916 the investment for the Sta dard Oil Co. (California) was 46.3 per cent of the total, while June 30, 1919, it was 44.8 per cent; the Union Oil Co. of Californ

had 36.1 per cent of the investment at the end of 1916 and 36.7 per cent on June 30, 1919; the Associated Oil Co., which has the third largest marketing investment, had 12.1 per cent of the total on December 31, 1916, and 14.7 per cent at the middle of 1919, while the marketing investment of the Shell Co. of California declined from 5.4 per cent at the end of 1916 to 3.3 per cent at the end of June, 1919.

INVESTMENT PER BARREL SOLD.—The net marketing investment, including net working capital per barrel of all petroleum products sold for the four large marketing companies operating in the Pacific coast territory for the period 1914–June 30, 1919, is shown in Appendix Table 57.

The six-month period for 1919 has been computed on an annual basis on the assumption that the six months' sales represented half of the year's total. This table shows almost a steady increase in the average net investment per barrel for all companies from 1914 to June 30, 1919. In 1914 the average for the Associated Oil Co. and the Standard Oil Co. combined was about 50 cents per barrel, while on June 30, 1919, for all four companies it was almost 93 cents per barrel. This represents a net gain of practically 86 per cent in the four and one-half years. From 1915 to 1917 there was only a slight gain, due to the relatively rapid increase in the quantity sold as compared with the increase in investment. In 1918 and 1919 the net investment increased, while sales declined as compared with 1917, resulting in a large increase in the average net investment per barrel. The Union Oil Co. of California shows the highest average investment per barrel throughout the period and the Associated Oil Co. the lowest for a single year, while that for the Shell Co. of California was lowest in the last two years.

The quantity of petroleum products sold by the four large marketers increased from 60,197,069 barrels in 1916 to 65,230,750 barrels in 1918, while the sales for the first half of 1919 indicated a decrease at the rate of 9 per cent for the year. There were some changes in the percentages which each company sold of the total sales for the four companies during the period. In 1916 the Standard Oil Co. sold about 44 per cent of this total quantity, while in the first half of 1919 its proportion was 45 per cent; the Union Oil Co. of California sold 16 per cent in 1916 and for the first six months of 1919 it sold 21 per cent; the Associated Oil Co. showed a decline from 30 per cent in 1916 to 22 per cent on June 30, 1919, while the Shell Co. of California had 10 per cent of the sales in the earlier year and 11 per cent for the later period.

Section 7. Earnings on refining and marketing investment.[1]

TOTAL EARNINGS.—Any presentation of earnings for the refinery and marketing operations of the five large companies in California is more or less arbitrary. Three of the companies furnished statements showing such departmental earnings, while the other two did not show separate earnings for refining and marketing. As already shown, the activities of these five interests, except in the case of the General Petroleum Corporation, extend to every branch of the petroleum business of the Pacific coast. They all produce a large proportion of the crude petroleum required for their refinery operations,

[1] See Ch. V for earnings of all operations.

own or control the pipe lines and tank steamers in which the cru
is transported to their plants, operate refineries, and, except in
case of the General Petroleum Corporation, have extensive marke
ing organizations for the distribution of their refined produc
Hence it is evident that the presentation of earnings by departmen
involves the transfer of materials or services from one department t
another, not at actual cost, but at a price at which materials cou
be sold or services rendered to outside companies at a profit. Thre
of the large refining companies, viz, the Associated Oil Co., Standar
Oil Co. (California), and the Union Oil Co. of California, furnishe
statements showing income by departments. In setting up the
departmental earnings the refineries were charged and the producin
department credited with the crude petroleum produced by the com
pany and run through the refinery at the posted market price o
crude petroleum at the wells for the same gravity crude plus tran
portation charges. The rates allowed for transportation by pipe lin
are in some cases the rates filed with the State railroad commissio
for common-carrier shipments, while in other cases and for tan
steamers they are arbitrary charges of the company, as there hav
been no common-carrier tariffs filed for such transportation.

The earnings for the refinery and marketing departments show
by the company records represent the income from sales, net, on a
f. o. b. refinery basis, the cost of packages, outgoing freight, trad
discounts, returned sales, and marketing expenses having been de
ducted. The net refinery and marketing income for the companies
showing earnings by departments, and such earnings as adjusted by
the Commission, are shown in Appendix Table 58.

The first column shows the earnings for the refining and marketin
departments as reported by the companies, the second the adjus
ment necessary to place all depreciation on a 5 per cent basis, and
the last column the net refinery and marketing earnings after the
adjustment to a uniform depreciation basis.

The Shell Co. of California and the General Petroleum Corporation
did not show departmental earnings. In order to secure results for
these companies comparable with those for the other three large inte
grated companies, and also to enable a comparison to be made of the
operations of the producing department of these two companies with
those for companies engaged only in production, the Commission has
shown separate earnings for marketing and refining. The earnings
for all operations of these companies, the earnings computed by the
Commission for the producing department by allowing the current
market price for crude petroleum refined, depreciation adjusted to
5 per cent, and, in the case of the General Petroleum Corporation,
the deduction of earnings for the marine department and nonoperat
ing income as reported by the company, and the earnings thus deter
mined by the Commission for the refinery and marketing depart
ments, are shown in Appendix Table 59.

The total earnings for all departments, as shown by the companies'
books, are given on the first line for each company. In the case of the
General Petroleum Corporation earnings of the marine department
and nonoperating income, as shown by the company's books, have
been deducted from the total earnings. The earnings computed by
the Commission for the producing departments of both companies as
obtained by charging the refineries the current market price for the

crude petroleum refined have been deducted, and the difference between the depreciation charged by the companies and that computed by the Commission at 5 per cent has been added back to the companies' earnings.

RATE OF EARNINGS.—The rate of earnings on the refining and marketing investment has been computed on the net investment, including working capital as of December 31 for the first year and on the mean investment, i. e., one-half of the sum of the investment at the beginning and end of the year, for the succeeding years. Data are not available to compute the mean investment for the first year for each company, and the investment at the end of the year has been used for the first year shown. The mean investment is used rather than that of the first of the year, as it makes allowance for any extraordinary increase which may have occurred in the investment during the year. The following table shows the net investment, including working capital as of December 31, for the first year and the mean investment for the later years, and the net income for refining and marketing as revised by the Commission, and the rate of earnings on this basis, 1914 to June 30, 1919.

TABLE 53.—*Net refining and marketing investment, net earnings, as revised by the Commission, and the rate of earnings for four large companies, 1914–June 30, 1919.*

Year and company.	Net refining and marketing investment.	Net earnings.	Annual basis.
Standard Oil Co. (California).			Per cent.
1914	$44,013,277.61	$1,774,113.28	4.03
1915	44,670,426.10	2,092,545.10	4.91
1916	47,135,213.57	3,067,726.80	6.60
1917	52,280,271.30	3,454,265.40	6.61
1918	58,074,512.27	12,782,263.70	22.77
1919 [1]	63,790,734.90	8,792,984.99	13.15
United Oil Co., of California.			
1914	13,627,538.65	324,365.48	2.61
1915	13,313,260.74	619,284.06	4.65
1916	12,648,580.62	1,772,203.27	13.91
1917	15,756,105.52	2,166,112.70	13.65
1918	22,317,021.15	1,697,264.24	7.79
1919 [2]	26,089,871.47	3,254,422.52	27.34
Shell Co. of California.			
1916	7,267,393.55	[3] 4,422.19	[3] .09
1917	7,157,744.25	20,921.25	.42
1918	7,961,646.17	[3] 764,322.50	[3] 15.90
1919 [4]	9,160,691.61	[3] 1,469,774.14	[3] 25.73
Associated Oil Co.			
1914	7,301,121.44	[3] 724,183.89	[3] 6.99
1915	8,272,223.55	[3] 844,071.20	[3] 12.26
1916	8,645,233.93	[3] 2,232,704.04	[3] 33.73
1917	9,980,159.71	[3] 1,875,734.28	[3] 27.05
1918	11,267,726.07	[3] 913,238.13	[3] 9.76
1919 [4]	11,614,630.39	[3] 1,154,883.19	[3] 21.94
Total 4 companies.			
1914	64,941,937.70	2,824,662.65	4.70
1915	66,256,910.39	3,556,000.36	5.99
1916	72,697,027.67	7,072,634.30	11.09
1917	85,194,280.78	7,496,984.63	9.55
1918	99,621,405.66	15,357,088.57	17.39
1919 [4]	110,657,928.37	[3] 14,672,064.84	[3] 15.97

[1] The General Petroleum Corporation is omitted from this table, as most of its products are sold at wholesale, and, having a very small refining and marketing investment, its rates of earnings are not comparable with the other 4 large companies.

[2] Investment in bank forms 1 omitted.

[3] Loss.

[4] First 6 months.

The General Petroleum Corporation sells its products principally at wholesale on an f. o. b. refinery basis, and having a comparatively small refinery and practically no marketing investment, its activities in these branches are not comparable with those for the companies shown in the above table.

The rate of earnings as computed by the Commission is slightly higher for the Standard Oil Co. (California) and the Union Oil Co. of California than that computed on the companies' reported earnings throughout the entire period. In the case of the Associated Oil Co. the loss, as shown by the Commission, is slightly higher than that shown by the company for the period 1914–1917, and profit during 1918 and the first half of 1919 is also greater than that based on the company's statement. The Shell Co. of California shows a small profit on its refinery and marketing departments for 1916 and 1917, while a loss is shown for 1918 and 1919. The combined earnings for all four companies show a small rate of earnings except in 1918 and the first half of 1919. In 1914 the combined total includes only two companies, while from 1917 to June 30, 1919, all four are included.

SIGNIFICANCE OF THE RATE OF EARNINGS.—In the preceding paragraphs of this chapter the refining and marketing departments have been placed on an equal footing with a refining company having to purchase all of its crude petroleum at the current market price and having to pay the regular tariff rates for pipe-line service. As shown in the preceding tables, two companies show a profit for their refining and marketing departments on this basis for each year for which the rate of earnings are shown, while the other two companies show losses for most years. The two companies showing the most favorable results for these departments operate the most complete refining plants. A comparison of the rate of earnings with those shown in Chapter V for the entire oil business of each company shows that as a rule the profits on refining and marketing have been materially lower than those for the combined business of these companies; in other words, other departments, such as the producing and transporting (principally pipe line), have been more profitable than the refining and marketing departments. This low rate of earnings or actual loss for the refining and marketing departments of the large companies shows the great handicap the small refiner, who has no production or pipe lines, encounters in attempting to develop a refining and marketing business. As a matter of fact, the small refiner is a very small factor in the refining and marketing business of California. As already shown, in 1919 the small operators owned 23 plants out of a total of 38 for the State, but they refined only about 9 per cent of the total crude consumed by refineries.

MARGIN OF PROFIT ON PRODUCTS.—The cost of particular products as computed on the basis of refinery yield and sales realization has been shown in section 3, while the margin of profit as determined by deducting such costs from the f. o. b. refinery realization for gasoline, engine distillate, kerosene, fuel and gas oil, lubricating oils, asphaltum, and other products, and the margin between f. o. b. sales realization and the actual cost of refining a barrel of crude oil is shown in Appendix Table 60.

While the cost of refining increased steadily from 1914 to 1919, excepting during 1915, the f. o. b. refinery sales realization increased at an even greater rate, which resulted in a constantly increasing

margin of profit throughout the entire period. The actual cost of refining a barrel of crude oil increased about 68 per cent from 1914 to June 30, 1919, the f. o. b. sales realization increased 100 per cent, while the margin of profit per barrel increased almost 162 per cent.

The margins for the particular products show considerable fluctuation due to the fact that the changes in price were not uniform for all products. Gasoline shows its smallest margin in 1915 and its largest margin in 1918. From 1914 to June 30, 1919, it shows an increase of almost 118 per cent, as compared with an increase of 162 per cent for all products. The margin for engine distillate increased 220 per cent from 1914 to June 30, 1919. The year 1919 shows the largest margin. The largest margin for kerosene is shown for 1918, the smallest for 1915, while that for 1914 was next to the smallest. The increase in the first half of 1919 over 1914 was about 80 per cent. Fuel and gas oil show a constantly increasing margin, which increased almost 216 per cent from 1914 to June 30, 1919. The margin of profit for lubricating oils increased from 1915 to 1919. The increase from 1914 to June 30, 1919, was about 67 per cent. Other products show an increase each year over the preceding year except during 1915 and the first half of 1919. From 1914 to June 30, 1919, the margin of profit on other products increased about 188 per cent.

CHAPTER IX.

GENERAL CONDITIONS IN THE UNITED STATES DURING 1919.

Section 1. Source of information.

On June 1, 1920, the Commission submitted a report to Congress on The Advance in Price of Petroleum Products. This report was made in response to House resolution 501, Sixty-sixth Congress, second session, which was adopted April 5, 1920. Owing to the brief time allowed to report on this inquiry, much of the information in answer to the schedules sent out by the Commission was not received until after the report was issued, while much of that received before June 1, 1920, could not be compiled in time for use in the report.

There were four schedules, one covering the financial features of the companies, another covering data on the production of crude petroleum, the third was addressed to refiners of petroleum products, and the fourth to jobbers and marketers.

Since the publication of the report above mentioned, the information secured from the schedules, which were sufficiently complete, has been compiled for presentation in this chapter. All of the information presented in this chapter was secured from reports submitted by the companies, and it was not verified by the Commission.

Section 2. Production of crude petroleum.

SCOPE OF INFORMATION.—It is estimated that there are 16,000 producers of crude petroleum in the United States. Many of this number have very small production and do not keep adequate records of their operations, hence the crude petroleum producers' schedules were only sent out to a comparatively small percentage of the producing companies. The companies selected were all quite large producers, of which only 82 submitted reports which contained information complete enough for tabulation. The information secured is not complete enough to be considered representative of the entire crude petroleum producing business, because it does not show the situation of the small producers. In addition to the 82 crude-petroleum producing companies, which submitted schedules, 138 refining companies, and certain other large companies, furnished information as to the quantity produced. These reports showed a total production of 239,038,000 barrels of crude petroleum for 1919, which is 63.3 per cent of the total of 377,719,000 [1] reported by the United States Geological Survey.

PRODUCTION BY LARGE INTERESTS.—A large proportion of the crude petroleum production of the United States is produced by a comparatively few large companies. Of the total of 239,038,000 barrels shown above, 224,190,000 barrels were produced by companies which, with their subsidiary or affiliated producing companies,

[1] Preliminary estimate of the U. S. Geological Survey.

had a production in excess of 1,000,000 barrels each in 1919, leaving only 14,848,000 barrels produced by the smaller companies covered. There were undoubtedly some other companies not reporting which produced more than 1,000,000 barrels in 1919, but practically all the principal producers are included.

Table 84 shows the number of companies having a production of more than 1,000,000 barrels in 1919, the total quantity produced by them, for Standard Oil and independent producers separately, and the average production per company for California and the territory east of the Rocky Mountains:

TABLE 84.—*Production of crude petroleum by Standard Oil and independent companies producing 1,000,000 barrels or over in 1919.*

Group.	Number of companies.	Production.	Average per company.
		Barrels.	Barrels.
Standard Oil:			
East of Rocky Mountains	7	28,011,963	4,573,423
California	1	25,491,564	25,491,564
Total	8	53,503,527	6,687,941
Independents:			
East of Rocky Mountains	16	20,862,244	5,053,890
California	7	44,824,553	6,403,179
Total	23	142,686,797	6,203,774
Total:			
East of Rocky Mountains	24	151,874,199	6,328,092
California	8	72,315,816	9,039,477
Total	32	224,189,015	7,005,907

As already stated, the marketed crude petroleum production for the United States in 1919, as reported by the United States Geological Survey, was 377,719,000 barrels. In 1919, 32 companies and subsidiaries produced 59.4 per cent of that total; members of the Standard Oil group contributed 21.3 per cent, and independent producing companies 38.1 per cent. Many of these companies are so closely related that they really represent but 20 different interests.

The total marketed production east of the Rocky Mountains in 1919, as reported by the United States Geological Survey, was 276,155,000 barrels. Of this total 151,874,000 barrels, or 55 per cent, was produced by 24 companies, 8 of which belonged to the Standard Oil group and produced 19.9 per cent of the total, while 16 large independent producers produced 35.1 per cent of the total in this section. The total production in California during 1919 was 101,564,000 barrels, and 72,315,000 barrels, or 71 per cent, was produced by 8 companies.

From the above it appears that the production is more concentrated in California than in the territory east of the Rocky Mountains, excepting in the case of particular fields such as the Wyoming oil fields,[1] and that the large independents control a greater production than members of the Standard Oil group.

[1] Report of the Federal Trade Commission on The Petroleum Industry of Wyoming.

The largest production reported for a single company was for a member of the Standard Oil group in California and the second largest was for an independent company in the Mid-Continent Field; the production of the former was equal to 6.7 per cent of the total for the United States and of the latter 5.7 per cent. Reports were obtained from nine producing interests belonging to the Standard Oil group, viz, the South Penn Oil Co., the Ohio Oil Co., the Carter Oil Co., the Prairie Oil & Gas Co., the Cullinan Cos., the Magnolia Petroleum Co., the Standard Oil Co. of Louisiana, the Humble Oil & Refining Co., and the Standard Oil Co. (California). The average production per company for the large Standard producers named above was 8,944,094 barrels and for the large independents 6,247,525 barrels; while the averages east of the Rocky Mountains were 6,876,483 for members of the Standard group and 6,053,890 for the large independents.

The ability of the Standard group to secure necessary supplies of crude petroleum has depended more on its extensive control of pipe-line facilities than on direct control of production.[3] Taking only those companies which are recognized as being Standard companies and excluding those in which they have less than a 50 per cent interest, the Standard Oil group had a total production of 80,497,000 barrels, or about 21 per cent of the total marketed crude petroleum production of the United States in 1919. This figure is considerably larger than the figure reported to Congress on June 1, 1920, due to the inclusion of additional data and to a revision of the figures. The totals shown above represent practically the entire crude-petroleum production of the Standard Oil companies, as the production of companies belonging to this group which are not reported is so small as to be practically negligible. During 1920 the Standard Oil Co. (Indiana) acquired a 33 per cent interest in the Midwest Refining Co. This latter company has a large proportion of the crude-petroleum production in the Wyoming oil fields.

The refining operations of these two companies at Casper, Wyo., are so closely associated that this acquisition will give practical control to the Standard Oil Co. (Indiana). The Midwest Refining Co.'s production, that of its subsidiaries, and that secured through contracts and working agreements, was 8,292,588 barrels, while other Midwest interests produced 498,239 barrels. This production was all in the State of Wyoming. If this quantity were added to that of the Standard group, it would give this group a total of 88,789,434 barrels, or 23.5 per cent for the entire country. Excluding the California field, the crude-petroleum production for the Standard group in 1919 for the fields east of the Rocky Mountains was 55,012,000 barrels, or about 19.9 per cent of the total marketed crude petroleum production for those fields, while if the crude petroleum production of the Midwest Refining Co. is included this total would be increased to about 63,304,000 barrels, or 22.9 per cent.

A further study of the operations of large crude petroleum producers shows that most of the 32 companies, with a total production of 224,190,000 barrels in 1919, were either refiners of crude oil or were practically identified with them by the fact that the majority of the capital stock was held by the same stockholders. The production of

[3] In 1919 the Standard Oil group controlled about 68 per cent of the total trunk pipe line mileage in the United States.

companies who are themselves refiners, or thus integrated with refiners, amounted to over 210,000,000 barrels in 1919. It is thus seen that a considerable integration of the producing and refining phases of the industry has developed.

The distribution of the production of the above companies by the character of their operations is shown in Table 85.

TABLE 85.—*Crude petroleum production of large producing companies grouped according to the degree of integration, in barrels of 42 gallons, 1919.*

Group and character of business.	Number of companies.	Quantity.	Percentage of total production for United States.
		Barrels.	*Per cent.*
Standard Oil:			
Producers	4	22,126,439	3.5
Producers and refiners	1	1,450,178	.4
Producers, refiners, and marketers	4	56,953,599	12.9
Total	9	80,466,216	22.8
Independents:			
Producers	5	25,915,427	6.7
Producers and refiners	7	21,965,310	5.4
Producers, refiners, and marketers	11	95,642,269	22.0
Total	23	143,523,076	35.1
Total:			
Producers	9	57,193,266	15.2
Producers and refiners	8	23,365,473	5.8
Producers, refiners, and marketers	15	152,600,488	37.4
Total	32	234,189,227	58.4

During 1919 the companies reporting a production of over 1,000,000 barrels each engaged solely in producing crude petroleum produced 15.2 per cent of the total quantity marketed in the United States, companies engaged in producing and refining only produced 8.8 per cent, while the highly integrated companies which were engaged in all branches of the oil business from production of the crude to wholesale and retail distribution of refined products produced 35.4 per cent. The Standard group of companies engaged in crude petroleum production only showed a higher percentage of the total than independents, their respective percentages being 3.5 and 6.7 per cent of the total marketed in the United States for the year.

Independent companies engaged in producing crude petroleum and in refining it had 8.4 per cent of the total marketed, while similar Standard companies produced only four-tenths of 1 per cent. The acquisition of an interest in the Midwest Refining Co. by the Standard Oil Co. (Indiana) during 1920 will materially increase the quantity of crude petroleum produced by Standard companies engaged in producing and refining. If the crude petroleum production of the Midwest Refining Co., as shown in a preceding paragraph be included, the total quantity for Standard producing and marketing companies would be increased to 9,722,766 barrels and its proportion increased to about 2.6 per cent, while that for the large independents would be decreased.

The independent companies that are highly integrated and are engaged in all branches from the production of crude petroleum to the distribution of the refined products had almost twice as large a

production of crude petroleum in 1919 as the highly integrated Standard companies, the percentages of the marketed production being 23 per cent for independents and 12.4 per cent for members of the Standard group.

Section 3. Petroleum refining industry.

IMPORTANCE OF LARGE REFINERS.—The bulk of the crude petroleum refined in the United States is consumed by large refineries. In California, as already shown, 5 large companies refined 91 per cent of the total in 1919. In the same year in the Wyoming oil fields 1 large company refined almost 86 per cent of the total,[1] while 39 companies refined almost 85 per cent of all the crude petroleum consumed by the refineries in the entire country.

The present position of the Standard Oil group in the refining branch of the industry is of special interest. It has already been shown that in 1919 that interest produced 21.3 per cent of the marketed crude petroleum production of the United States. The following table shows the refining capacity and the proportion of crude petroleum consumed by the 14 recognized Standard Oil refining companies, by 25 large independent refining interests each of which consumed more than 1,000,000 barrels of crude oil, and for all other independent refiners for 1919:

TABLE 86.—*Daily capacity operated and consumption, Standard Oil and independent refiners, 1919.*[1]

Group.	Refining daily capacity.	Per cent.	Crude oil consumed in refineries.	Per cent.
	Barrels.		*Barrels.*	
Standard Oil	668,700	36.5	159,999,833	43.8
Large independents reporting to Commission	787,130	43.3	145,775,753	41.1
All other independents	373,575	20.2	54,540,987	15.1
Total	1,829,355	100.0	361,316,573	100.0

[1] In connection with the above figures it should be noted that they differ somewhat from those shown in the report on The Advance in Price of Petroleum Products made on June 1, due to revised figures and more complete returns. (Report of Federal Trade Commission on The Advance in Price of Petroleum Products, p. 51.) The crude petroleum consumption of Standard Oil refineries instead of being 159,104,000 barrels as shown in that report is actually only 159,999,833 barrels according to reports made to the Commission, or 43.8 per cent of the total crude consumed instead of the 44.3 per cent. The total of 359,104,000 barrels included some oil reserves, which have been excluded in this chapter. The crude consumed by the large independents is much larger than is shown in the report of June 1 because the present tabulation covers the crude production of 25 large independent interests instead of 16.

The total daily capacity is that shown by the United States Bureau of Mines as having been operated at the end of 1919. The above table shows that the 14 Standard Oil companies had 36.5 per cent of the refining capacity of the country which was operated in 1919, but actually consumed 43.8 per cent of the total crude petroleum consumed as reported by the Bureau of Mines. The 25 large independents, on the other hand, had a larger proportion of the refining capacity than of the crude consumed—43.3 per cent as against 41.1 per cent. The other small independents also had a larger proportion of the refining capacity than of the crude consumed.

The statistics of refining capacity and the total quantity of crude petroleum consumed were obtained from Bureau of Mines reports. The quantity of crude petroleum consumed by the large independent

[1] Report of Federal Trade Commission on The Petroleum Industry of Wyoming, p. 35.

refiners and by Standard Oil refineries were compiled from reports made to the Commission by the individual companies, while the capacity and quantity consumed by other independents is the difference between the total for the industry and the combined total shown for the Standard and large independent refiners.

There are 14 refining companies included in the Standard Oil group and 25 companies in the group of large independents. The Standard refineries had an average daily capacity of about 35,400 barrels and an average consumption of 11,300,060 barrels in 1919, while the 25 large independents had an average daily capacity of 23,487 barrels and an average consumption of 5,951,150 barrels in 1919.

The Standard refineries were operated at a larger percentage of their rated capacity than the 25 large independents. On the basis of rated capacity the Standard refineries were operated at 87 per cent of capacity and the large independents at 69 per cent.

REFINERY YIELDS.—The reports obtained by the Commission from companies operating 106 refining plants show considerable difference in the percentages of the principal petroleum products obtained from a barrel of crude petroleum. Yields from refineries consuming mixed crude—i. e., crude petroleum from several different fields—were eliminated. The number of refining plants, the quantity of crude petroleum consumed, and the percentages of yield for the principal petroleum products, as shown by reports to the Commission, from companies operating 106 refineries, by fields and States, is shown in Appendix Table 61.

The refineries designated as light products plants produced only the lighter refined products, such as gasoline and kerosene, and the residue is sold as gas and fuel oil. The lubricating plants produce these light products and in addition produce numerous grades of lubricants. The pressure stills are used to redistill the fuel and gas oil at extreme temperatures under heavy pressure. They are operated in connection with light products and lubricating plants and they secure additional gasoline from the fuel and gas oil.

As shown in the table, the percentages of yield represent a total of 106 plants consuming crude from practically every important crude petroleum producing State and field excepting California. The yields represent the operations under commercial conditions and do not show the possible yields that can be obtained from the different crudes. As already stated, refiners can vary their yields, within certain limits, to satisfy a relatively strong demand for certain products, and in order to realize a larger sales realization from their production.

The reports obtained by the Commission from refiners covered refinery consumption of 308,321,434 barrels, while Appendix Table 61 shows a consumption of 81,272,409 barrels. This difference is due to the exclusion of the operations of refining plants running several kinds of crude.

There is a wide range in the yields obtained by different plants in the same field, and for the same plant for different periods; this is largely due to the differences in the quality of the crude consumed in the refinery. For example, in Oklahoma a very much higher yield of gasoline is obtained by refiners consuming crude petroleum produced in the Cushing field than for plants operating on average Oklahoma crude, and in Wyoming the yield of gasoline from Elk Basin and Grass Creek crude is double that from the Big Muddy crude.

The most significant figures in this table are the yields for refineries consuming Pennsylvania crude (Pennsylvania and West Virginia combined), for refineries using Mid-Continent crude, and for those using the yields from Wyoming crude, all of which are representative, being based on a crude consumption of more than 5,000,000 barrels each.

YIELDS FROM APPALACHIAN CRUDE.—The yield from 23 lubricating plants consuming the Pennsylvania (Pennsylvania-West Virginia) grade of crude petroleum and consuming 5,761,000 barrels of crude showed a yield of 27.1 per cent of gasoline, 25.6 per cent of kerosene, 13.3 per cent of fuel and gas oil, 22.5 per cent of lubricating oil, and 6 per cent of miscellaneous products, leaving a loss of 5.5 per cent. The low yield of fuel and gas oil is due to the fact that there are no light products refineries in this section. The inclusion of other Appalachian crudes changes the yields for the Appalachian group slightly from these figures.

YIELDS FROM MID-CONTINENT CRUDE.—The yields from the different parts of the Mid-Continent Field differ considerably. The crude petroleum production of the Mid-Continent Field includes that of Kansas, Oklahoma, north Texas, Arkansas and north Louisiana. The production of this field is so large and its territory so extensive that representative yields can be secured from a number of sections of this field.

Kansas-Oklahoma.—The yields from 31 light products plants consuming Mid-Continent crude petroleum produced in Kansas and Oklahoma and refining 15,027,000 barrels of crude petroleum, showed a yield of 32.5 per cent of gasoline, 14.7 per cent of kerosene, 50 per cent of fuel and gas oil, and one-tenth of 1 per cent of miscellaneous products, leaving a loss of only 2.7 per cent. This yield of gasoline is much higher than the average for the entire production because the companies included are relatively small independent refiners who pay a premium over the posted price for the lighter crudes which yield more gasoline than is secured from the average grade. The inclusion of 21 light products plants consuming Healdton, Okla., north Texas, and north Louisiana crudes and consuming 9,242,000 barrels of crude petroleum reduces the average yield of gasoline by more than 3 per cent, but correspondingly increases the yields of the other products.

The yield from 11 lubricating plants operating on Mid-Continent crude petroleum and consuming 6,885,000 barrels of crude petroleum, showed a yield of 23.4 per cent of gasoline, 17.2 per cent of kerosene, 46.8 per cent of fuel and gas oil, 4.5 per cent of lubricating oil, and 2.9 per cent of miscellaneous products, leaving a refinery loss of 5.2 per cent. It is worthy of note that the yield of gasoline from these lubricating plants was 28 per cent less gasoline than from the 31 light products plants. This is not due to the character of the operations, but to the difference in the character of the crude. The same quality of crude petroleum may produce the same quantity of gasoline regardless of whether it is run through a light products plant or a lubricating plant, but a good crude petroleum for lubricating stock may frequently contain less gasoline than one that has little lubricating stock; however, some crudes rich in lubricants have a very high gasoline yield. Moreover, as already stated, the refineries operating the light products plants frequently purchase only such crude as produces a high yield of gasoline.

Comparing the yield of the Mid-Continent lubricating plants with the yield of 23 lubricating plants consuming Pennsylvania and West Virginia crude, it is significant as to the relative character of the crudes that the latter plants produce more lubricating oil, more gasoline, and more kerosene, but a much smaller yield of gas and fuel oil than the Mid-Continent lubricating plants. The Pennsylvania and West Virginia crude petroleum shows a greater yield of miscellaneous products, which is largely due to the larger yield of paraffin wax obtained from this crude petroleum.

As already stated, the term Mid-Continent Field is used to include Healdton, Okla., north Texas, and north Louisiana, as well as the Kansas and northern Oklahoma. The subject of yields from light-products plants should not be dismissed without studying the yields from some of these other light-products plants, as the quantity of crude refined by plants consuming the Healdton and north Texas crudes was large enough in 1919 to be representative.

Healdton.—Although the Healdton crude comes from the State of Oklahoma, it is a heavy crude and has a much lower gasoline content than most other Oklahoma crudes. The yield from three plants running 4,320,000 barrels of Healdton crude was 16.1 per cent of gasoline, or less than half the yield from the light-products plants consuming crude petroleum produced in Kansas and northern Oklahoma. The yield of kerosene was 22.4 per cent, or about one and one-half times that from the Kansas-Oklahoma crude while the fuel and gas oil was 56.9 per cent as compared with 50 per cent from the plants operating on crude produced in Kansas and northern Oklahoma.

North Texas.—The north Texas crude petroleum is similar in quality to the Kansas-Oklahoma crude and the yields of the different products by 15 plants running 4,035,000 barrels of this crude petroleum were practically the same as the yields from the 31 plants running 15,027,000 barrels of the Kansas-Oklahoma crude petroleum.

YIELDS FROM WYOMING CRUDE.—Refinery yields for light-products plants consuming 11,487,000 barrels of crude petroleum are shown in Appendix Table 61. This represents 90 per cent of the total quantity of crude petroleum refined in the entire Rocky Mountain Region. These plants recovered 26.9 per cent of gasoline, 10.3 per cent of kerosene, and 58.4 per cent of fuel and gas oil. The refinery loss was 4.3 per cent. Most of the fuel and gas oil produced by light-products plants in Wyoming is rerun through pressure stills.

YIELDS FROM PRESSURE STILLS.—Pressure still yields are not comparable with those from light-product or lubricating plants, as an increased yield of gasoline is obtained by breaking up the gas and fuel oil and recovering more gasoline. The yield from three plants operating pressure stills and consuming 29,495,000 barrels of Mid-Continent crude petroleum showed a yield of 46 per cent of gasoline, 15.8 per cent of kerosene, 15.4 per cent of fuel and gas oil, 6.1 per cent of lubricating oil, and 9.1 per cent of miscellaneous products, leaving a loss of 7.6 per cent. It will be observed that the yield of gasoline was double the yield from the lubricating plants, and the yield of lubricating oil was only slightly greater. There is a slight decrease in the yield of kerosene, but a very large decrease in the yield of fuel and gas oil. This large decrease in the yield of fuel and

gas oil is due to the fact that the pressure stills take the fuel and gas oil fractions and break them up into other products, the most important of which is gasoline. The pressure stills show an increase of nearly 46 per cent in the refinery loss.

Section 4. Earnings in the industry during 1919.

EARNINGS FROM PRODUCTION.—On June 1, 1920, when the Commission submitted its report to Congress on The Advance in Prices of Petroleum Products, only general statements could be made regarding the profits for the year 1919. Since that time the schedules received then or later have been tabulated and an analysis has been made of the earnings for 82 crude petroleum producing companies that submitted complete reports covering the financial features of their business. While these 82 companies represent only a small fraction of the total number of producers of crude petroleum, they produced about 16.5 per cent of the marketed production for 1919, but as a large part of the crude petroleum production is that of integrated companies, the proportion of the 82 companies constitutes a large part of that for the nonintegrated companies.

EARNINGS IN ENTIRE BUSINESS.—The rate of earnings on the entire business of the 82 companies engaged solely in producing crude petroleum has been compiled on the basis of their aggregate net investment. The net investment was determined by deducting such items as appreciation of property, trade-marks, good will, and current liabilities from the total assets as reported by the companies. The earnings on the entire business were determined by adding back to the reported earnings the interest on funded and other debt, and income and excess profits taxes. The gross production, the net investment, including funded debt, the earnings, including interest on funded debt, and the rate of earnings for the entire business for 82 crude petroleum producing companies, by groups, is shown in the following table:

TABLE 87.—*Rate of earnings in the entire business for producing companies, by groups, 1919.*

Section of field.	Number of companies.	Gross production.	Net investment (including funded debt).	Earnings (including interest on funded debt).	Rate of earnings.
		Barrels.			Per cent.
Appalachian:					
Pennsylvania and West Virginia	12	4,328,464	$42,020,022	$4,427,229	11.5
Kentucky	3	100,949	11,087,497	156,393	1.7
Total	15	4,434,509	58,083,325	4,583,722	9.6
Central West:					
Ohio	2	145,522	720,022	100,488	21.3
Illinois	2	10,726,643	98,995,841	13,088,286	13.6
Total	4	10,877,165	99,715,163	13,188,284	13.6
Mid-Continent:					
Kansas and Oklahoma	13	23,797,197	233,667,426	33,698,673	17.1
Oklahoma	23	7,366,439	75,547,584	8,473,388	11.3
North Texas	4	10,782,670	17,997,196	4,972,388	30.9
Healdton, Okla.	3	872,127	1,596,070	335,239	21.1
Total	43	41,369,737	329,313,269	47,479,688	14.9
Gulf Coast	7	1,263,161	5,172,690	474,622	9.2
Wyoming	6	2,131,221	15,275,170	1,045,154	7.0
California	5	2,904,794	13,397,600	871,627	6.1
Grand total	82	63,181,587	457,560,545	71,562,504	15.6

The above table shows that for 82 strictly producing companies producing 62,162,000 barrels of crude oil, the rate of earnings on their net investment for 1919 was only 15.6 per cent. The eight California producing companies with a production of 2,464,000 barrels showed the lowest rate of return for any group, 6.1 per cent on net investment. The highest rate of return for any group was shown by four companies in the Central West with a production of 10,377,000 barrels and a return of 18 per cent on net investment. The highly important Mid-Continent group with a production of 41,201,000 barrels, including a small quantity of Healdton crude, showed a return of 16.9 per cent. The lowest return, 1.7 per cent, was for the State of Kentucky, but as the production reported was only 101,000 barrels, the figure is not significant. The highest average rate of earnings for a single group is shown for four companies in north Texas whose average rate of earnings was 38.9 per cent. There was a large new production in northern Texas in 1919, which accounts for the high average in that section. The combined results for the Appalachian field with a production of 4,435,000 barrels was 9.6 per cent.

EARNINGS IN PETROLEUM BUSINESS.—The net investment for the 82 companies in the oil business was obtained by deducting outside investments and investments in affiliated and subsidiary companies from the net investment shown above. The earnings for the oil business were determined by deducting from the earnings, shown above, the income from outside investments and from affiliated and subsidiary companies.

The following table shows the net investment, earnings, and rate of earnings for the oil business for 82 crude petroleum producing companies, by groups, in 1919:

TABLE 88.—*Rate of earnings in the petroleum business for producing companies, by groups, 1919.*

Section or field.	Number of companies.	Gross production.	Net investment (including funded debt).	Earnings (including interest on funded debt).	Rate of earnings.
		Barrels.			Per cent.
Appalachian:					
Pennsylvania and West Virginia	12	4,333,454	$39,864,620	$3,125,676	13.9
Kentucky	3	100,940	6,889,220	185,268	2.7
Total	15	4,434,400	46,753,845	4,321,039	13.5
Central West:					
Ohio	2	143,702	775,022	146,440	22.2
Illinois	2	10,233,403	40,321,651	13,502,304	17.3
Total	4	10,377,105	41,100,200	13,671,000	18.1
Mid-Continent:					
Kansas and Oklahoma	12	22,767,227	105,194,320	20,121,365	14.7
Oklahoma	28	7,205,420	46,101,127	6,159,573	12.5
North Texas	4	10,735,674	15,443,205	6,716,454	42.9
Healdton, Okla.	3	502,127	1,217,727	362,843	30.7
Total	43	41,200,727	201,156,057	62,349,713	17.2
Gulf Coast	7	1,343,181	5,003,105	665,610	21.7
Wyoming	9	2,421,621	13,540,277	1,025,028	7.7
California	3	2,464,260	13,004,719	793,599	6.1
Grand total	82	62,161,657	355,557,220	84,726,249	15.7

The rates of earnings for the oil business were generally higher than for the entire business, but in four cases they were lower. The greatest difference was in the case of the two Illinois companies

which showed 18 per cent on the entire business and 33.3 per cent on the oil business, while on the other hand two Kansas companies which showed earnings of 3.1 per cent on the entire business show a loss of four-tenths of 1 per cent on the oil business. These companies had a small production. For the entire 82 companies the rate of earnings for the entire business was 15.6 as compared with 17.7 for the oil business alone.

A great variation in the rate of earnings is shown by grouping the 82 crude petroleum producing companies according to the profitableness of their oil producing operations in 1919. In the following table these 82 companies have been placed in five groups as follows: Group 1 includes the crude petroleum producing companies showing a loss on their net investment; group 2 is made up of companies earning less than 10 per cent; group 3 covers crude petroleum producers earning from 10 to 20 per cent; group 4 comprises companies earning from 20 to 30 per cent; while group 5 consists of operators earning in excess of 30 per cent.

Table 89 shows the number of companies in each group, the gross production per group, the average gross production per company, the proportion of production included in each group, the net investment, the earnings, and the rate of earnings for each group, in 1919:

TABLE 89.—*Rate of earnings in the petroleum business for producing companies, by profit groups, 1919.*

Group.	Percentage of profit.	Number of companies.	Gross production.			Net investment (including funded debt).			Earnings, including interest on funded debt.	Rate of earnings.
			Total.	Average per company.	Proportion of total.	Total.	Average per company.	Proportion of total.		
			Barrels.	Barrels.	Per ct.			Per ct.		Per ct.
1	Loss	14	1,638,302	117,022	2.6	$13,098,240	$934,885	3.6	[1] $362,188	[1] 2.8
2	Less than 10	28	13,935,694	497,703	22.5	104,881,734	3,745,776	28.7	6,845,900	6.5
3	10 to 20	17	10,728,753	631,103	17.2	80,420,220	4,731,131	22.0	11,304,516	14.1
4	20 to 30	9	12,863,106	1,429,234	20.4	112,060,117	12,451,124	30.6	24,117,139	21.5
5	Over 30	14	23,175,712	1,655,408	37.3	55,386,026	3,956,859	15.1	22,924,863	41.3
	Total	82	62,162,161	758,099	100.0	365,847,480	4,461,565	100.0	64,729,310	17.7

[1] Loss.

According to the reports submitted by the companies, almost 31 per cent of the net investment in the oil business for the 82 crude-petroleum producing companies, earned from 20 to 30 per cent in 1919, almost 29 per cent earned less than 10 per cent, 22 per cent earned from 10 to 20 per cent, while 15 per cent earned in excess of 30 per cent.

Fourteen crude petroleum companies out of the 82 show a loss for 1919 which averaged 2.8 per cent on their net investment in the oil business. These 14 companies produced 2.6 per cent of the quantity of crude petroleum produced by the 82 companies and had 3.6 per cent of the net investment. The largest number of companies, 28, are in group 2, which show an average of 6.5 per cent of profit on the net investment. This group produced 22.5 per cent of the crude petroleum and had 28.7 per cent of the net investment. The third group including 17 companies also shows a larger proportion of the net investment than of the production. The average rate of earnings for this group was 14.1 per cent, their net investment 22 per

cent of the total, while their proportion of the production was 17.2 per cent. Group 4, which shows an average rate of earnings of 21.5 per cent, had 20.4 per cent of the quantity of crude petroleum produced and 30.6 per cent of the net investment; while group 5, which shows an average rate of earnings of 41.2 per cent produced 37.3 per cent of the total production, but had less than half that percentage of the aggregate net investment.

The average investment per company ranged from $934,885 for group 1 to $12,451,124 for group 4, while the average net investment for group 5 was only slightly larger than that for group 2. The average production per company ranged from 117,022 barrels for group 1, which lost money, to 1,655,403 barrels for group 5, which showed the highest average rate of earnings, 41.2 per cent.

As already stated, most of the crude-petroleum producing companies having an annual production of over 1,000,000 barrels each submitted complete reports to the Commission. Hence, the results shown above include companies having an average annual production much in excess of the average for the industry. The results shown in the above table, which are corroborated by those shown for California for the period 1914 to June 30, 1919, indicate that probably many small crude petroleum producers showed a loss for 1919, but that companies producing the great bulk of the production obtained substantial profits.

The results for the 42 producing companies in the Mid-Continent Field grouped as above is shown in the following table:

TABLE 90.—*Rate of earnings in the petroleum business for producing companies operating in the Mid-Continent field, by profit groups, 1919.*

Group.	Percentage of profit.	Number of companies.	Gross production.			Net investment (including funded debt).			Earnings, including interest on funded debt.	Average rate of earnings.
			Total.	Average per company.	Proportion of total.	Total.	Average per company.	Proportion of total.		
			Barrels.	*Barrels.*	*Per ct.*			*Per ct.*		*Per ct.*
1	Loss	6	294,154	49,026	0.7	$2,394,893	$447,482	1.3	[1] $114,770	[1] 3.4
2	Less than 10	14	8,607,286	571,955	19.4	54,209,555	3,879,254	21.6	2,946,981	5.4
3	10 to 20	9	9,311,462	1,034,617	22.6	72,967,973	8,096,442	29.0	10,399,743	14.2
4	20 to 30	5	12,046,972	2,412,396	29.3	108,707,798	21,753,559	43.3	23,214,327	21.3
5	Over 30	8	11,520,773	1,440,097	28.0	11,085,889	1,460,731	4.8	6,551,957	57.3
	Total	42	41,200,727	980,970	100.0	251,185,827	5,979,663	100.0	43,248,713	17.2

[1] Loss.

Over 43 per cent of the net investment for crude-petroleum producing companies, shown in the above table, earned from 20 to 30 per cent in 1919; 29 per cent earned from 10 to 20 per cent; and 21.6 per cent less than 10 per cent, while 1.3 per cent showed an average loss of 3.4 per cent, and 4.8 per cent earned above 30 per cent, with an average rate of earnings of 57.3 per cent.

The six companies showing a loss had a small average production of only 49,026 barrels. This group had 0.7 per cent of the gross production and almost double that percentage of the aggregate net investment. The 14 companies in group 2, with an average rate of earnings of 5.4 per cent, produced 19.4 per cent of the aggregate production and had 21.6 per cent of the net investment; group 3 earned 14.2 per cent, produced 22.6 per cent of the production and had 29 per cent

of the investment; group 4 had an average rate of earnings of 21.3 per cent, produced 29.3 per cent of the total quantity, and had 43.3 per cent of the net investment. This group includes large companies having an average annual production of 2,413,396 barrels and an average net investment of $21,753,559. The fifth group shows very large average earnings, 57.3 per cent. While this group has only 4.8 of the net investment it produced 28 per cent of the aggregate production. The average per company investment of this group is much lower than that of any other group showing a profit.

EARNINGS FROM REFINING BUSINESS.—Complete schedules were received from 138 refining companies which show their investment and earnings for 1919. These have been classified into four groups: Eastern, Middle West, Rocky Mountain, and Pacific Coast, according to the location of the refinery. The Eastern group includes refineries in the States of New Jersey, New York, Pennsylvania, and West Virginia; the Middle West group those in the States of Illinois, Indiana, Kansas, Kentucky, Louisiana, Missouri, Ohio, Oklahoma, and Texas. The Rocky Mountain group consists of refineries in Colorado, Utah, and Wyoming, while the Pacific Coast group covers the State of California. These refiners consumed about 303,321,000 barrels of crude petroleum in 1919, or 34 per cent of the total refined in the United States, as reported by the United States Bureau of Mines.

EARNINGS IN ENTIRE BUSINESS.—The rate of earnings has been computed on the net investment for the entire business of the 138 refining companies who submitted sufficient information regarding their investment and earnings. Table 91 shows the quantity of crude consumed, the quantity of crude produced by the same companies or closely affiliated companies, the refining capacity as reported by the companies, and the net investment and rate of earnings on the entire business for the 138 companies, by groups:

TABLE 91.—*Rate of earnings in the entire business for refining companies, by groups, in 1919.*

Section and State.	Number of companies.	Crude consumed.	Crude produced.	Refining capacity.	Net investment (including funded debt).	Earnings (including interest on funded debt).	Rate of earnings.
Eastern:		*Barrels.*	*Barrels.*	*Barrels.*			*Per ct.*
New York and New Jersey	2	55,129,677	.....	127,700	$894,095,833	$152,217,825	17.0
Pennsylvania and West Virginia	30	27,065,372	1,899,267	92,167	126,393,089	25,402,644	18.8
Total	32	82,194,049	1,899,267	219,867	820,488,922	146,620,467	17.9
Middle West:							
Illinois	6	7,577,055	3,091,913	25,490	27,462,212	2,962,960	10.7
Indiana	2	24,944,668	26,615	65,900	174,478,244	38,888,018	22.3
Kansas and Missouri	12	6,210,228	1,827,164	33,965	39,686,302	4,247,410	11.9
Louisiana	3	12,943,629	2,160,699	44,100	52,972,708	13,220,548	25.6
Ohio and Kentucky	7	6,289,205	11,948	21,650	42,895,627	13,240,087	30.9
Oklahoma	26	26,795,324	7,468,179	142,205	168,127,227	10,920,962	6.4
Texas	14	45,207,522	27,626,652	141,200	315,681,225	57,127,136	18.7
Total	73	130,019,634	31,736,304	326,910	884,306,170	140,386,269	14.9
Rocky Mountain:							
Colorado and Utah	4	1,160,903	93,138	3,375	1,654,933	220,701	13.3
Wyoming	3	11,467,601	9,402,353	57,250	52,097,570	13,907,134	26.7
Total	7	12,628,494	9,495,491	57,625	59,697,207	14,127,835	22.6
Pacific coast:							
California	19	75,510,307	32,128,813	279,200	373,654,971	67,148,615	18.0
Grand total	138	303,321,484	115,231,264	1,063,527	2,088,362,770	340,325,185	16.3

As already stated, the above table shows a crude petroleum consumption of 303,321,000 barrels as compared with a total consumption for the country in 1919, as reported to the Bureau of Mines, of 361,520,000 barrels or nearly 84 per cent. These same companies, or closely affiliated companies produced 116,211,294 barrels or 38.3 per cent of their crude petroleum consumption. These 138 companies had a daily refining capacity of 1,064,000 barrels or 79 per cent of the country's total refining capacity of 1,356,000 barrels daily, which was operated in 1919, as reported by the United States Bureau of Mines.[a] As these plants operated 79 per cent of the total capacity in operation in 1919 and consumed 84 per cent of the crude petroleum refined, it is evident that they were operated at a larger percentage of their rated capacity than were the refineries not covered in this report.

The 138 companies combined show a total net investment, including funded debt, of $2,088,283,000 and total earnings (after adding back interest on the funded debt) of $349,819,000, or 16.8 per cent on net investment.

The Middle West group is the largest group, but shows the lowest return on investment, 14.3 per cent on net investment. This group consumed 45 per cent of the total quantity of crude petroleum refined by the 138 companies and had almost 40 per cent of the net investment. The Rocky Mountain group shows the highest rate of earnings, 27.6 per cent. The rate of earnings for the Eastern group and the California companies are 17.9 and 18 per cent, respectively.

The lowest return for any division was the State of Oklahoma, in the Middle West group. Reports from 28 independent refiners showed a return on net investment of only 6.4 per cent. This tends to bear out the contention of the independent Mid-Continent refiners that they were making very little profit in 1919, and it is further supported by the fact that the profits in the other divisions of the Mid-Continent Field, Kansas and Texas, also show low rates of earnings.

The highest rate of earnings is shown for Ohio and Kentucky refineries, which include seven companies, and have a return of 30.6 per cent. The refineries in Wyoming show the next largest average rate of earnings, 29.5 per cent.

EARNINGS IN DOMESTIC PETROLEUM BUSINESS.—The net investment in the domestic oil business was determined by deducting all outside investments and investments in subsidiary and affiliated companies from the net investment for the entire business, while the income from such outside sources was deducted from the earnings on the entire business to obtain the earnings in the oil business. The following table shows the net investment, the earnings, and rate of earnings in the oil business for 138 petroleum refiners in 1919.

[a] Total daily refining capacity at end of 1919 was 1,356,000 barrels.

TABLE 92.—*Rate of earnings in the domestic petroleum business for refining companies, by groups, in 1919.*

Section and State.	Number of companies.	Net investment (including funded debt).	Earnings (including interest on funded debt).	Rate of earnings.
				Per cent.
Eastern:				
New York and New Jersey	3	$330,316,241	$22,502,100	20.4
Pennsylvania and West Virginia	36	106,285,550	22,553,272	21.2
Total	39	436,601,791	115,055,372	25.2
Middle West:				
Illinois	6	27,554,901	3,888,551	14.0
Indiana	3	152,030,378	35,066,115	23.0
Kansas and Missouri	12	23,514,719	4,154,013	17.7
Louisiana	3	53,737,333	13,072,071	24.3
Ohio and Kentucky	7	34,267,813	13,775,462	37.3
Oklahoma	28	141,137,746	8,840,175	6.3
Texas	14	276,745,973	31,231,443	11.5
Total	73	702,988,833	110,103,335	15.7
Rocky Mountain:				
Colorado and Utah	4	6,817,068	918,365	13.5
Wyoming	3	41,223,049	14,454,551	35.1
Total	7	48,040,117	15,372,879	32.0
Pacific Coast:				
California	19	318,046,947	64,736,679	20.4
Grand total	138	1,525,677,713	305,291,753	20.0

The total net investment in the domestic oil business for the 138 companies was $1,525,677,000, or $562,606,000 less than for the entire business of these companies, while the earnings from the oil business were $305,291,000, or only $44,528,000 less than the total earnings. The largest deduction on account of investment and earnings from outside investments occurred in the case of the Eastern group of refiners located on the Atlantic seaboard; the deductions for outside investment for these companies was $363,882,000 and that for earnings from such outside investments $31,565,000. This increased their rate of earnings from 17.9 for the entire business to 25.2 for the oil business. The Oklahoma refiners show a slightly smaller yield from the oil business than from their entire business. Their rate of earnings for the oil business was 6.3 per cent and for the entire business 6.4 per cent. The rate of earnings from the oil business for all companies reporting was considerably higher than for the entire business, 20 per cent for the former as compared with 16.3 per cent for the entire business.

The highest rate of earnings for the domestic oil business only is shown for the refineries in the Rocky Mountain Region. The average rate of earnings for seven companies was 32 per cent in 1919. Four companies in Colorado and Utah earned 13.5 per cent, while the three companies in Wyoming earned about 35 per cent. The Middle West group shows the lowest average rate of earnings, 15.7 per cent. There was a wide variation for the different States; 28 Oklahoma owners earned only 6.3 per cent, while 7 companies in Ohio and Kentucky earned 37.3 per cent.

The rate of earnings for the 138 refiners varied greatly in 1919. In order to show this variation a further analysis of their operations

has been made, and the companies have been placed in seven different groups according to the profitableness or unprofitableness of their operations in the domestic oil business in 1919. These seven groups have been further subdivided to show the results for the Eastern, Middle West, including Rocky Mountain, and Pacific Coast sections. The seven groups are defined as follows: Group 1 includes companies showing a loss on their 1919 operations; group 2 embraces those earning less than 10 per cent; group 3 covers companies earning from 10 to 20 per cent; group 4 shows those earning from 20 to 30 per cent; while companies having profits of 30 per cent or over are in group 5. The following table shows the quantity of crude petroleum consumed, the proportion of the total consumed, the net investment, proportion of net investment, the earnings and rate of earnings on the net investment, by groups and subgroups, as defined above, during 1919:

TABLE 93.—*Rate of earnings in the petroleum business for refining companies, by profit groups, 1919.*

Group.	Percentage of profit.	Number of companies.	Crude consumed.			Net investment (including funded debt).			Earnings (including interest on funded debt).	Rate of earnings.
			Total.	Average per company.	Proportion of total.	Total.	Average per company.	Proportion of total.		
			Barrels.	*Barrels.*	*Per ct.*			*Per ct.*		*Per ct.*
1	Loss	28	5,670,741	225,163	2.0	$28,454,470	$1,023,373	1.9	[1] $2,526,626	[1] 8.5
2	Less than 10	39	46,109,790	1,200,256	16.2	284,672,231	7,304,416	18.7	16,847,368	5.9
3	10 to 20	26	71,221,057	2,708,271	25.8	393,589,943	15,091,629	25.6	53,444,906	13.7
4	20 to 30	17	108,574,220	6,210,236	44.3	481,965,000	28,344,412	31.6	118,946,812	24.7
5	30 and over	28	66,605,111	2,441,261	23.8	336,725,017	12,132,304	22.2	115,532,552	34.3
	Total	138	308,221,434	2,197,961	100.0	1,525,676,713	11,055,628	100.0	305,298,764	20.0

[1] Loss.

The above table shows that 28 companies, or one-fifth of the total number, lost money, but as they had only 3 per cent of the crude consumed and 1.9 per cent of the investment of all companies reporting, they were not an important factor in the situation. The largest group numerically was the one which earned less than 10 per cent. It was composed of 39 companies with 16.2 per cent of the crude consumed and 18.7 per cent of the investment, showing a return of 5.9 per cent. The most important group from the standpoint of consumption and investment was the group that made from 20 to 30 per cent. Although composed of only 17 companies, yet it had 34.8 per cent of the crude consumed and 31.6 per cent of the investment, showing an average profit of 24.7 per cent. Notwithstanding the fact that this group showed such a high return and that there were 28 companies showing a return of over 30 per cent, all groups combined showed a return of 20 per cent on investment.

EARNINGS IN DOMESTIC OIL BUSINESS GROUPED ACCORDING TO INVESTMENT.—The refining companies reporting to the Commission cover a wide range in size; 77 of the 138 companies have a net investment in the domestic petroleum business of less than $1,000,000 per

company, while 5 show an investment of $100,000,000 or over each. The following table shows the 138 companies grouped according to the size of their net investment:

TABLE 94.—*Rate of earnings in the domestic petroleum business, by investment groups, 1919.*

Group.	Range of investment.	Number of companies.	Net investment (including funded debt).	Earnings (including interest on funded debt).	Rate of earnings.
					Per cent.
1	$100,000,000 and over	5	$722,022,646	$177,580,952	24.6
2	$25,000,000 to $100,000,000	10	493,385,421	79,221,436	16.1
3	$5,000,000 to $25,000,000	15	217,082,162	33,630,067	15.5
4	$1,000,000 to $5,000,000	31	65,235,071	10,018,591	15.4
5	Under $1,000,000	77	27,991,413	4,830,787	17.3
	Total	138	1,525,676,713	305,280,783	20.0

The five groups shown in the above table have a very wide range in the average per company net investment in the domestic oil business; companies in group 1 average almost $144,405,000, while those in group 5 average only $363,525. In other words, the companies in group 1 have a net investment in the oil business almost 40 times as large as those in group 5. The rate of earnings for the five groups shows a range from 15.4 per cent to 24.6 per cent.

The largest rate of earnings is for group 1, which includes companies having an investment of over $100,000,000 per company. There are five companies in this group with an aggregate net investment in the oil business of $722,022,646 and aggregate earnings of $177,580,952. As already shown the average net investment per company is almost $144,405,000, the average earnings per company are $35,516,000, and the average rate of earnings 24.6 per cent. This group had 47 per cent of the net investment in the oil business and 58 per cent of the aggregate earnings.

The second largest rate of earnings is shown by group 5, which includes companies having the smallest per company net investment in the oil business. This group includes 77 companies with an average per company net investment of $363,525. This group shows an average rate of earnings of 17.3 per cent. Although this group includes 77 companies or 56 per cent of the total companies presented in the above table, it only covers about 18 per cent of the aggregate net investment and about 16 per cent of the total earnings.

The remaining groups show only a small difference in their average rate of earnings, which range from 15.4 per cent to 16.1 per cent. The groups having the larger net investment per company show a slightly higher rate of earnings than those with the smaller investment. Group 2 with an average of $49,338,500 net investment per company in the oil business earned 16 per cent; group 3 with an average of $14,470,100 earned 15.5 per cent, while group 4 which had an average investment of $2,104,000 per company earned 15.4 per cent. While the average per company net investment for group 2 was twenty-four times as large as group 4, its average rate of earnings was only 0.7 per cent greater.

EFFECT OF PRESSURE STILL OPERATION ON EARNINGS.—The larger yields of gasoline obtained by the refiners operating pressure stills have already been shown, and in the following a comparison is presented between the companies using pressure stills and those employing only ordinary refining methods.

TABLE 95.—*Comparison of rate of earnings in the domestic petroleum business, for refiners using pressure stills with those employing ordinary refining methods, by investment groups, 1919.*

Group.	Range of investment.	Refining method.	Number of companies.	Net investment (including funded debt).	Earnings (including interest on funded debt).	Rate of earnings.
						P. ct.
1	$100,000,000 and over	Pressure stills	3	$445,727,095	$121,108,681	27.2
		Ordinary method	2	276,305,051	56,473,301	20.4
	Total		5	722,032,046	177,580,982	24.6
2	$25,000,000 to $100,000,000	Pressure stills	4	233,134,779	49,911,708	21.4
		Ordinary method	6	200,250,642	20,309,750	11.3
	Total		10	433,385,421	70,221,458	16.1
3	$5,000,000 to $25,000,000	Pressure stills	6	82,778,429	18,944,462	22.6
		Ordinary method	9	134,273,733	14,694,595	11.0
	Total		15	217,052,162	33,639,057	15.5
4	$1,000,000 to $5,000,000	Pressure stills	4	14,345,054	5,786,129	40.3
		Ordinary method	27	50,880,017	4,282,373	8.3
	Total		31	65,225,071	10,018,501	15.4
5	Under $1,000,000	Ordinary method	77	27,991,413	4,830,787	17.3
	Total, all groups	Pressure stills	17	777,015,357	195,730,969	25.2
		Ordinary method	121	748,681,856	109,590,796	14.6
	Grand total		138	1,525,676,713	305,320,765	20.0

The rate of earnings for companies using pressure stills ranges from 1½ to almost 5 times as high, for each group, as the rate shown by companies employing only ordinary methods. The difference is greatest for group 4, which includes companies having a net investment ranging from $1,000,000 to $5,000,000. The average rate of earnings for the four companies using pressure stills was 40.3 per cent in 1919 as compared with an average of only 8.3 for companies employing ordinary methods of refining. The smallest difference is for group 1, which includes companies having a net investment in the oil business of $100,000,000 or over. The companies in this group are highly integrated, so that the larger refinery yields of gasoline secured from the pressure stills has less effect on their rate of earnings than for companies, such as are included in group 4, that are engaged almost exclusively in refining crude petroleum.

The Burton Process is the most important cracking process in use at the present time. It has been employed by Standard Oil refineries for a number of years, and in 1920 it was made available for independent companies. The proportion of gasoline and naphtha obtained by refiners using this process has been practically double that secured from the same crude by ordinary refining processes. For example, one refinery operating on Mid-Continent crude obtained a

yield of 59 per cent of gasoline for the first half of 1919 and 55 per cent for the last half. This gasoline averaged 58° Baumé the first period and 57° Baumé for the last half of 1919. In 1919 approximately 15 per cent of all the gasoline distilled in the United States was produced by the Burton Process.

EFFECT OF OWNERSHIP OF CRUDE PRODUCTION ON EARNINGS.—In the preceding paragraphs the 138 refining companies have been grouped according to the size of their net investment in the domestic oil business. In the succeeding discussion these companies have been placed on the basis of the quantity produced of the crude petroleum consumed which was produced by the refining company. Group 1 includes companies with less than 2 per cent production of crude petroleum, group 2 those with a production of less than 20 per cent of their refinery requirements, group 3 those with a production of from 20 to 50 per cent of their refinery consumption of crude petroleum, and group 4 those with a production of more than 50 per cent of their crude consumption. The results are shown in the following table:

TABLE 96.—*Rate of earnings in the domestic petroleum business, by companies, grouped according to the proportion of their crude petroleum consumption which they produced in 1919.*

Group.	Proportion of crude petroleum consumption produced.	Number of companies.	Net investment (including funded debt).	Earnings (including interest on funded debt).	Rate of earnings.
					Per cent.
1	None[1]	97	$668,126,356	$163,494,105	24.5
2	0 to 20 per cent	9	72,575,511	15,921,582	21.9
3	20 to 50 per cent	9	46,474,756	7,716,490	16.6
4	Over 50 per cent	23	738,500,050	116,228,898	15.7
	All groups	138	1,525,676,713	303,360,703	20.0

[1] A few companies had a negligible percentage of crude production.

The companies showing the highest rate of earnings in 1919 were those purchasing all of their supply of crude petroleum, while those producing less than 20 per cent of their requirements show the second largest returns. The companies having no crude petroleum production earned 24.8 per cent and those producing less than 20 per cent of their own requirements earned 21.9 per cent on their net investment in the oil business. The group producing more than 50 per cent of its crude supply shows smaller earnings than any other group.

APPENDIX.

EXHIBIT.

[From Annual Report of the Attorney General of the United States, 1920, pp. 111-112.]

SUITS AGAINST THE SOUTHERN PACIFIC RAILROAD CO. CONCERNING OIL LANDS.

These suits were brought to cancel patents issued to the Southern Pacific Co. and alleged to have been procured by fraud in that the company represented to the officials of the Land Department of the Government that the lands involved were nonmineral, whereas they were in fact, and were known by the company to be, valuable oil lands. The first case tried, known as the "Elk Hills case," involved some 6,000 acres, valued at many millions of dollars, located in the Elk Hills, Calif., within the limits of naval petroleum reserve No. 1, and was decided in the district court in favor of the United States. On appeal the circuit court of appeals reversed the decision below. Upon appeal by the Government from this decision the Supreme Court, on November 17, 1919, reversed the circuit court of appeals, finding the alleged fraud conclusively proven, and directed the entry of a decree canceling the patent as prayed thus restoring to the Government title to the very valuable oil lands.

The remaining six cases, involving approximately 150,000 acres, were consolidated for hearing and argued and submitted to the district court in April, 1918, and on August 28, 1919, decision was handed down adverse to the United States. From this decision the Government did not appeal, and, in view of the fact that it might be supposed that the six cases just referred to would be controlled by the decision in favor of the Government in the Elk Hills case, a word of explanation is deemed appropriate.

In the first of the six suits instituted, known as No. 46, civil, the Government contended that as a matter of law oil lands did not pass under grants to the company because mineral lands were expressly excepted from the grants and the patent contained a clause excepting mineral lands from its operation. Fraud in the procurement of the patent was also alleged, it being charged that the company had knowledge of the mineral character of the land at the date of patent. Before the case came to issue the Supreme Court, in Burke v. Southern Pacific Co. (234 U. S. 669), held that the mineral land exception in such patent was void, and that the patent was conclusive upon collateral attack, though subject to the right of the Government to attack it by direct suit if the land was known to be mineral when patent was issued. In the Burke case the court also held oil to be a mineral. The Government was therefore compelled to rely entirely in No. 46, civil, as it purposed doing in the Elk Hills case, upon its allegations of fraud, which it then had every reason to believe were well founded in both cases.

However, at the conclusion of the evidence in No. 46, civil, and the other cases consolidated therewith, it was found that there was an entire lack of proof of such facts and circumstances as impelled the court to find fraud in the Elk Hills case. On the contrary, there was indubitable evidence to the effect that the defendant company did not, at the time the patents were issued, believe that the lands were valuable for oil. In short, there was evidence supporting each and every finding of fact, and the court made no substantial ruling on the law adverse to any contention of the Government. Under these circumstances it seemed clear that an appeal would have been not only wasteful of time and money, but it might well be deemed frivolous.

APPENDIX TABLES.

TABLE 1.—*Imports, exports, and net imports of crude petroleum, in barrels of 42 gallons, 1913–1920.*[1]

Year.	Imports.	Exports.	Net imports.	Percentage of net imports to total consumption.
	Barrels.	*Barrels.*	*Barrels.*	*Per cent.*
1913	16,978,570	4,633,610	12,345,960	4.7
1914	16,913,121	2,980,804	13,947,227	5.3
1915	16,120,338	2,266,166	14,271,170	5.3
1916	20,766,965	4,066,902	16,700,063	5.2
1917	30,126,883	4,117,764	26,009,119	6.7
1918	37,735,841	4,900,723	32,834,918	8.0
1919	52,821,557	6,018,651	46,802,916	11.1
1920	106,176,299	8,757,099	97,419,197	18.5

[1] Compiled from Monthly Summary of Foreign Commerce of the United States, Bureau of Foreign and Domestic Commerce.

TABLE 2.—*Imports, exports, and net exports of refined petroleum products, in barrels*[1] *of 42 gallons, for the United States, 1913–1920.*[2]

Year.	Exports.	Imports.	Net exports.
	Barrels.	*Barrels.*	*Barrels.*
1913	47,162,960	434,707	46,668,213
1914	51,056,079	335,615	50,720,464
1915	53,094,979	44,131	53,050,841
1916	59,267,435	447,854	58,819,581
1917	60,044,476	1,436,447	58,608,029
1918	60,589,729	1,227,833	59,371,896
1919	54,291,991	1,278,851	53,013,739
1920	67,110,196	2,646,496	64,463,700

[1] The quantities of paraffin wax reports in pounds have been converted to barrels on the basis of 6½ pounds to the gallon.

[2] Compiled from Monthly Summary of Foreign Commerce of the United States, Bureau of Foreign and Domestic Commerce.

TABLE 3.—*Marketed production of crude petroleum, in barrels of 42 gallons, by States, 1859–1920.*

[Statistics from United States Geological Survey, except for certain States in 1919, which are from State reports or trade journals.]

Year.	California.[a]	Oklahoma.	Pennsylvania and New York.	Texas.	Ohio.
	Barrels.	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
1859–1908	201,965,625	[1] 45,064,441	667,625,409	117,819,901	368,200,103
1909	44,834,737	45,795,765	10,584,453	11,206,464	10,856,797
1910	38,471,601	47,930,218	10,434,209	9,534,487	10,632,798
1911	73,610,580	52,085,716	9,848,590	8,980,266	9,918,279
1912	81,134,391	58,089,697	9,200,673	9,836,474	8,817,113
1913	[2] 87,272,500	81,427,071	8,712,076	11,735,087	[2] 8,989,697
1914	97,786,835	89,570,264	8,695,493	13,080,479	8,781,488
1915	99,775,327	79,881,736	9,109,309	20,088,194	8,436,288
1916	89,201,535	97,915,243	8,729,453	24,942,701	7,875,236
1917	90,951,256	107,071,713	8,466,431	27,644,608	7,744,311
1918	93,877,549	107,507,471	8,612,895	32,413,287	7,730,540
1919	97,531,997	103,347,070	8,216,655	38,750,031	7,385,076
1920	101,564,000	84,904,510	8,074,272	55,957,000	7,067,788
	105,668,000	105,725,000	8,360,400	96,000,000	7,413,000
Total to date	1,317,438,576	1,041,980,267	894,627,389	559,537,005	477,987,154

[a] Total differs slightly from Tables 9 and 11, which are Standard Oil Co. statistics.
[1] Production for 1908 and 1909 included in Kansas.
[2] Includes Alaska.
[3] Includes Michigan.

TABLE 3.—*Marketed production of crude petroleum, in barrels of 42 gallons, by States, 1859–1920*—Continued.

Year.	Illinois.	West Virginia.	Kansas.	Louisiana.	Indiana.
	Barrels.	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
1859–1908	28,866,662	169,089,716	[a] 45,357,150	27,413,511	90,127,511
1908	23,646,233	9,825,176	1,801,751	5,786,874	2,289,695
1909	30,896,330	10,745,862	1,283,704	3,059,551	2,206,088
1910	33,142,262	11,753,071	1,136,668	6,941,395	2,139,732
1911	31,317,696	9,795,464	1,278,519	10,720,430	1,605,389
1912	28,601,358	10,128,902	1,562,796	9,253,430	970,089
1913	24,893,338	11,807,209	2,376,029	12,495,632	950,684
1914	21,919,749	9,650,023	3,105,555	14,209,443	1,254,488
1915	19,041,695	9,264,788	2,825,457	13,191,530	875,753
1916	17,714,236	8,721,184	3,738,077	15,246,133	782,080
1917	15,776,900	8,579,255	09,526,125	11,382,301	799,467
1918	13,365,974	7,806,029	45,451,017	16,042,000	877,555
1919	12,436,000	7,357,000	31,292,190	15,575,000	686,000
1920	10,772,000	6,173,000	28,801,000	25,642,000	622,000
Total to date	331,433,380	310,605,315	216,243,453	201,008,911	107,987,464

Year.	Wyoming.	Kentucky and Tennessee.	Colorado.	Montana.	Other.	United States.
	Barrels.	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
1859–1908	[b] 55,795	5,376,879	8,674,208	.....	[c] 21,471	[d] 1,806,606,483
1908	[e] 17,775	[f] 737,757	379,658	.....	[g] 15,246	178,527,365
1909	[e] 20,006	[f] 639,016	310,851	.....	[g] 5,780	183,170,374
1910	[e] 115,430	[f] 485,774	239,794	.....	[g] 3,615	209,557,248
1911	[e] 188,005	[f] 473,488	226,926	.....	[g] 7,995	220,440,231
1912	1,272,308	[f] 494,205	204,053	.....	.....	220,285,044
1913	2,426,532	[f] 524,688	188,799	.....	[h] 10,843	248,446,739
1914	3,880,376	[f] 502,441	222,778	.....	[i] 7,792	265,703,525
1915	4,245,223	[f] 537,274	208,475	.....	[i] 14,285	261,104,104
1916	6,294,137	1,203,246	197,235	44,917	[i] 7,705	300,767,149
1917	5,976,680	[k] 1,100,356	121,231	98,359	[l] 10,300	335,815,964
1918	12,896,267	4,376,342	143,286	66,323	[m] 7,943	344,927,719
1919	[n] 13,376,000	[k] 2,225,472	150,000	55,000	.....	377,718,000
1920	17,071,000	[k] 2,662,660	110,000	530,000	.....	443,402,000
Total to date	70,469,573	26,133,260	11,579,370	804,539	112,925	[o] 5,439,082,719

[a] Includes Oklahoma in 1905 and 1906.
[b] Includes Utah in 1907.
[c] Michigan and Missouri.
[d] Includes Utah.
[e] No production recorded for Tennessee.
[f] Alaska, Michigan, Missouri, and New Mexico.
[g] Alaska, Michigan, and Missouri.
[h] Alaska and Michigan.
[i] State report shows 13,380,000.

TABLE 4.—*Proven acres per well and average barrels per acre, by fields, in California, 1914–1920.*

Field.	1914				1918			
	Proven acres Dec. 31.[1]	Producing wells Dec. 31.[1]	Acres per well.	Barrels per acre.	Proven acres Dec. 31.[1]	Producing wells Dec. 31.[1]	Acres per well.	Barrels per acre.
Kern River	7,680	1,395	5.5	919	7,680	1,684	4.5	1,060
McKittrick	1,945	251	7.4	2,841	1,945	276	7.0	2,641
Midway-Sunset	26,800	1,276	20.5	1,371	26,800	1,413	19.0	1,098
Lost Hills-Belridge	2,000	240	12.1	1,000	3,085	246	12.5	1,305
Coalinga	14,400	815	17.7	1,106	14,440	804	18.0	1,228
Santa Maria	7,000	256	27.6	645	7,000	257	27.2	874
Ventura and Newhall	4,180	412	9.4	2252	4,180	444	9.4	247
Los Angeles and Salt Lake	2,700	467	5.9	898	2,700	661	4.9	722
Whittier-Fullerton	2,880	480	6.0	4,150	2,700	613	4.0	5,123
Summerland	230	102	2.9	282	230	112	2.1	300
Miscellaneous	200	5	40.0	127	200	5	40.0	127
Total	81,305	6,109	13.3	1,274	82,260	6,652	12.6	1,089

TABLE 4.—*Proven acres per well and average barrels per acre, by fields, in Californ 1914–1920*—Continued.

Field.	1916				1917			
	Proven acres Dec. 31.[1]	Producing wells Dec. 31.[1]	Acres per well.	Barrels per acre.	Proven acres Dec. 31.[1]	Producing wells Dec. 31.[1]	Acres per well.	Barrels per acre.
Kern River	7,690	1,926	4.0	1,603	7,730	1,960	3.9	1,[illegible]
McKittrick	1,545	288	5.3	2,491	1,535	300	5.1	1,[illegible]
Midway-Sunset	39,408	1,710	23.0	968	40,204	1,967	20.1	[illegible]
Lost Hills-Belridge	3,731	350	10.7	1,201	4,476	483	9.2	1,[illegible]
Coalinga	14,611	949	15.4	964	14,771	1,025	14.2	1,[illegible]
Santa Maria	7,070	240	29.5	455	7,710	300	25.7	[illegible]
Ventura and Newhall	4,394	446	9.9	255	4,514	451	10.0	[illegible]
Los Angeles and Salt Lake	2,700	674	4.0	638	2,700	683	4.0	[illegible]
Whittier-Fullerton	4,078	657	6.4	3,402	4,878	706	6.5	3,[illegible]
Summerland	230	112	2.1	347	230	112	2.1	[illegible]
Miscellaneous	200	5	40.0	137	200	5	40.0	[illegible]
Total	86,530	7,333	11.8	1,031	88,745	8,053	11.0	1,[illegible]

Field	1918				1919			
	Proven acres Dec. 31.[1]	Producing wells Dec. 31.[1]	Acres per well.	Barrels per acre.	Proven acres Dec. 31.[1]	Producing wells Dec. 31.[1]	Acres per well.	Barrels per acre.
Kern River	7,755	1,996	3.9	1,025	7,774	2,007	3.8	[illegible]
McKittrick	1,645	333	4.9	1,864	1,670	341	4.9	1,[illegible]
Midway-Sunset	40,582	2,206	18.4	889	40,606	2,348	17.3	[illegible]
Lost Hills-Belridge	4,675	535	8.7	1,189	4,853	561	8.6	[illegible]
Coalinga	14,916	1,160	12.1	1,021	14,990	1,220	12.2	1,[illegible]
Santa Maria	7,986	343	23.3	433	8,254	378	21.8	[illegible]
Ventura and Newhall	4,004	456	10.8	293	4,961	504	9.8	[illegible]
Los Angeles and Salt Lake	2,700	684	4.1	518	2,700	663	4.1	[illegible]
Whittier-Fullerton	5,230	784	6.7	4,754	5,702	887	6.5	4,[illegible]
Summerland	230	143	1.6	237	230	142	1.6	[illegible]
Miscellaneous	200	5	40.0	137	200	5	40.0	[illegible]
Total	90,944	8,605	10.6	1,119	92,087	9,137	10.1	1,[illegible]

Field.	1920			
	Proven acres Dec. 31.[1]	Producing wells Dec. 31.[1]	Acres per well.	Barrels per acre.
Kern River	7,376	2,182	3.7	[illegible]
McKittrick	1,670	352	4.7	1,[illegible]
Midway-Sunset	41,333	2,509	16.5	[illegible]
Lost Hills-Belridge	5,636	691	8.5	[illegible]
Coalinga	15,000	1,298	11.6	1,[illegible]
Santa Maria	8,302	408	20.6	[illegible]
Ventura and Newhall	4,960	513	9.7	[illegible]
Los Angeles and Salt Lake	2,700	656	4.1	[illegible]
Whittier-Fullerton	6,233	990	6.4	4,[illegible]
Summerland	230	140	1.6	[illegible]
Miscellaneous	200	9	22.2	[illegible]
Total	93,837	9,621	9.8	1,[illegible]

[1] Statistics from Standard Oil Bulletin. The Standard Oil Co. (Calif.) explains the 1919 acreage as follows:

"The proven area of the California oil fields is shown as 92,087 acres, equivalent to 143.89 square miles. In determining the figures the boundary lines of the proven area are drawn approximately 330 feet outside producing wells. In case of outlying single wells the field is credited with about 10 acres. These figures therefore represent the actual proven area and give no consideration to territory that is generally regarded as proven but is not fully drilled. For instance, large areas of undrilled territory in the Buena Vista Hills, although regarded as proven, are not included in the tabulation. The proven acreage shown is therefore low as compared with figures made by others."

TABLE 5.—*Proportion of oil wells, gas wells, and dry wells drilled in California and in the entire United States, 1907–1919.*

Year.	Section.	Oil wells.		Gas wells.		Dry wells.		Total.
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.
1907	California	206	93	2	1	11	5	219
	United States	15,221	70	415	2	5,631	26	21,267
1908	California	204	95	6	1	22	4	232
	United States	13,210	72	460	3	5,214	29	18,884
1909	California	378	90	7	1	40	9	425
	United States	13,673	72	1,055	6	5,464	29	19,192
1910	California	762	93	4	1	50	6	817
	United States	16,777	73	1,800	10	3,423	17	14,000
1911	California	970	89	8	1	104	10	1,082
	United States	9,526	71	1,686	13	2,263	17	13,775
1912	California	776	91	6	1	71	8	853
	United States	13,514	78	1,617	10	2,035	17	17,166
1913	California	799	91	9	1	67	8	875
	United States	20,101	78	2,210	8	4,269	17	26,580
1914	California	512	90	8	2	47	8	567
	United States	14,666	73	2,235	10	4,142	19	23,143
1915	California	772	91	9	2	30	7	861
	United States	9,154	65	2,080	14	2,961	21	14,195
1916	California	613	94	7	1	32	5	652
	United States	18,777	76	1,810	7	4,030	17	24,617
1917	California	686	93	10	1	48	7	744
	United States	22,290	71	1,976	6	4,851	23	33,117
1918	California	676	90	15	2	60	8	754
	United States	17,548	69	2,347	9	5,610	22	25,705
1919	California	547	90	10	2	51	8	608
	United States	21,253	73	2,067	7	5,807	20	29,127
	Total California	6,972	93	102	1	644	7	7,618
	Total United States	196,063	73	21,566	8	49,661	19	267,290

TABLE 6.—*Number and proportion of wells drilled in California, by companies reporting to the Commission, and the percentage drilled, by groups, 1914–1918.*

Year.	Total number for State.	Wells of companies reporting.		Reported wells by producing groups.							
				No. 1		No. 2		No. 3		No. 4	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
1914	567	239	42	150	63	45	19	31	13	13	5
1915	360	166	46	113	67	39	23	13	8	3	2
1916	652	435	67	343	79	37	9	37	8	18	4
1917	744	559	75	415	74	42	8	69	12	33	6
1918	754	517	69	373	72	73	14	80	15	13	3
Total	3,017	1,917	64	1,394	73	236	13	229	11	78	4

Group arrangement based upon the gross production in each year.
No. 1—Companies producing 1,000,000 barrels and over annually.
No. 2—Companies producing 250,000 to 1,000,000 barrels annually.
No. 3—Companies producing 50,000 to 250,000 barrels annually.
No. 4—Companies producing under 50,000 barrels annually.

TABLE 7.—*Physical properties of representative samples of California crude petroleum.*[1]

Field.	Specific gravity at 15° C.	Baumé degrees at 60° F.	Heating value per pound (B. t. u.).	Weight per gallon (pounds).	Flash point (open cup) °C.	Burning point (open cup) °C.	Viscosity at 20° C. (Engler scale).
Los Angeles City	0.9629	15.40	18,443	8.0227	107.0	145.0	272.5
Salt Lake	.9804	13.61	18,210	8.0015	46.0	60.0	224.2
Fullerton	.9507	32.28	18,790	7.9711	17.9	32.1	110.5
Whittier	.9395	18.20	18,808	7.8197	46.0	94.0	58.8
Newhall	.9245	21.96	18,845	7.7028	60.0	93.0	113.2
Santa Paula	.9022	25.32	18,834	7.5169	6.0	18.0	6.9
Lompoc	.9143	23.85	18,324	7.7845	−1.0	21.0	62.0
Santa Maria	.9053	24.66	18,720	7.5420	−2.0	20.0	19.9
Coalinga	.9255	21.26	18,658	7.8190	70.0	93.0	89.7
Midway	.9234	20.20	18,755	7.7498	54.0	93.0	91.7
Sunset	.9431	18.67	18,708	7.8956	67.0	79.0	120.5
Kern River	.9655	15.00	18,544	8.0414	102.0	138.0	891.0

[1] Beeon and Hamor, American Petroleum Industry, Vol. I, p. 121.

TABLE 8.—*Quantity and proportion of light and heavy crude petroleum produced in California, 1907–1919.*[1]

Year.	Light crude (18° Baumé and over).		Heavy crude (17.9° Baumé and under).		Total quantity (barrels).
	Barrels.	Per cent.	Barrels.	Per cent.	
1907	13,634,854	34	26,467,469	66	40,102,323
1908	17,309,425	36	30,996,312	64	48,305,737
1909	20,950,650	36	37,242,708	64	58,191,728
1910	34,988,988	45	42,782,662	55	77,697,650
1911	38,308,701	47	44,394,343	53	82,744,044
1912	45,646,197	54	42,464,242	46	88,074,439
1913	61,656,228	63	36,210,816	37	97,867,184
1914	71,883,230	69	33,123,345	31	105,025,605
1915	58,215,488	65	31,343,373	35	89,558,779
1916	59,404,384	65	32,137,657	35	91,532,262
1917	64,196,709	66	33,071,683	34	97,267,692
1918	68,687,378	67	33,540,687	33	101,227,570
1919	68,860,813	68	32,360,971	32	101,221,784

[1] Furnished by the Standard Oil Co. (California).

TABLE 9.—*Gross production of crude petroleum, in barrels of 42 gallons, in California, by fields, 1876–1920.*

Year.	Total.		Ventura County and Newhall.		Los Angeles and Salt Lake.		Summerland.	
	Barrels.	Per centages of maximum annual production.	Barrels.	Per centages of maximum annual production.	Barrels.	Per centages of maximum annual production.	Barrels.	Per centages of maximum annual production.
Prior to year 1876	175,000	(1)	175,000	1				
1876	12,000	(1)	12,000	1				
1877	13,000	(1)	13,000	1				
1878	15,227	(1)	15,227	1				
1879	19,858	(1)	19,858	1				
1880	46,553	(1)	46,553	2				
1881	96,862	(1)	96,862	3				
1882	152,698	(1)	152,698	4				
1883	145,857	(1)	145,857	4				
1884	260,000	(1)	260,000	7				
1885	460,000	(1)	460,000	12				
1886	625,000	(1)	625,000	16				
1887	577,145	(1)	577,145	15				
1888	675,572	1	675,572	18				
1889	660,323	1	660,323	17				
1890	539,280	(1)	539,280	14				
1891	507,280	(1)	507,280	14				
1892	558,600	(1)	558,600	15				
1893	506,049	(1)	506,049	13				
1894	670,179	(1)	670,179	18				
1895	783,973	1	783,480	20	267,100	5	1,500	1
1896	1,345,730	1	1,326,480	33	731,945	15	15,804	3
1897	1,397,780	1	1,365,986	34	805,088	15	26,702	12
1898	1,911,740	2	1,866,240	47	1,227,611	23	135,136	62
1899	2,342,988	2	2,157,089	53	1,462,571	28	123,217	57
1900	2,527,575	3	2,001,300	50	1,495,338	27	208,379	100
1901	4,319,960	4	4,151,000	51	1,722,267	24	153,498	55
1902	7,775,215	7	7,572,087	93	2,205,623	31	202,616	97
1903	14,236,940	14	13,975,000	93	2,156,466	41	143,582	69
1904	26,234,631	25	25,832,135	97	1,700,765	15	101,125	49
1905	28,345,424	28	28,035,779	97	1,207,304	24	126,880	61
1906	24,260,241	23	23,975,308	83	1,225,708	43	96,571	46
1907	25,625,239	24	25,454,370	89	1,675,439	42	71,430	34
1908	45,168,813	43	45,096,813	157	1,372,463	48	69,539	33
1909	45,205,737	43	45,068,615	157	1,135,169	100	67,953	32
1910	55,191,720	52	55,123,088	192	1,202,888	42	68,744	33
1911	77,897,888	73	77,826,278	271	1,770,615	73	71,725	34
1912	83,744,941	79	83,673,705	291	1,930,681	68	71,255	34
1913	82,975,450	78	82,909,844	289	1,975,037	69	66,711	32
1914	82,967,184	78	82,900,698	289	1,900,846	66	65,486	30
1915	105,823,686	99	105,758,631	368	2,004,678	70	60,743	27
1916	98,165,779	93	1,098,305	69	2,116,133	41	51,000	24
1917	91,822,862	87	1,152,653	72	1,721,653	34	48,776	23
1918	97,267,853	92	1,186,467	74	1,867,769	36	50,570	24
1919	104,857,570	98	1,208,519	75	1,967,781	37	44,513	21
1920	105,731,186	100	1,705,455	106	1,941,615	38	33,980	16
			2,122,640	100	1,511,264	29	54,910	26
Total	1,340,921,454		25,226,177		30,982,701		3,248,827	

[1] Less than one-half of 1 per cent.

TABLE 9.—*Gross production of crude petroleum, in barrels of 42 gallons, in California, by fields, 1876–1920*—Continued.

Year.	Coalinga.		Whittier-Fullerton.		McKittrick.	
	Barrels.	Percentage of maximum annual production.	Barrels.	Percentage of maximum annual production.	Barrels.	Percentage of maximum annual production.
1896	14,119	(1)				
1897	70,140	(1)	12,000	(1)		
1898	154,000	1	66,000	(1)	10,000	(1)
1899	439,272	2	166,077	(1)	35,000	(1)
1900	547,980	2	264,267	1	80,000	1
1901	1,000,433	3	302,652	1	450,450	7
1902	891,203	2	1,107,798	4	819,306	11
1903	2,158,068	11	2,204,613	8	1,232,206	16
1904	5,667,823	20	2,226,580	8	1,886,226	24
1905	8,892,156	45	2,116,212	7	1,373,030	17
1906	2,497,106	6	2,434,512	8	880,756	11
1907	3,988,288	9	3,294,208	11	2,415,840	29
1908	10,725,795	21	4,272,514	13	3,094,200	37
1909	15,498,619	27	5,157,263	16	3,887,200	46
1910	15,646,570	26	5,261,221	16	3,895,213	46
1911	15,211,261	24	7,091,185	22	3,677,212	44
1912	19,548,122	30	7,915,779	24	3,094,455	37
1913	15,624,698	23	10,657,053	32	4,488,542	53
1914	15,899,857	23	14,130,548	43	2,899,237	34
1915	13,849,159	20	13,032,849	41	2,892,821	34
1916	15,892,488	24	14,670,473	45	2,899,644	34
1917	15,892,543	23	13,165,449	37	3,282,544	39
1918	15,299,088	22	14,981,613	37	3,080,627	36
1919	15,892,610	22	32,657,063	100	2,850,343	34
1920	15,404,196	21	28,494,169	100	2,897,220	34
Total	245,932,996		197,650,384		69,825,479	

Year.	Kern River.		Sunset.		Midway.	
	Barrels.	Percentage of maximum annual production.	Barrels.	Percentage of maximum annual production.	Barrels.	Percentage of maximum annual production.
1899	220,775	1	12,000	(1)		
1901	3,276,440	10	138,000	1	4,225	(1)
1902	5,000,000	16	187,000	1	2,043	(1)
1903	16,240,000	50	332,215	2	27,325	(1)
1904	17,220,240	100	380,456	2	210	(1)
1905	15,332,941	89	418,213	3	18,520	(1)
1906	12,000,000	70	307,865	2	11,000	(1)
1907	12,540,814	73	794,000	5	140,944	(1)
1908	12,000,000	70	1,800,000	12	69,573	1
1909	14,000,000	81	1,800,000	12	2,000,000	6
1910	14,776,621	86	2,215,964	15	11,174,227	37
1911	14,077,000	82	5,550,000	37	11,000,000	36
1912	12,446,443	73	5,000,000	33	8,000,000	26
1913	9,000,000	52	5,000,000	33	5,000,000	16
1914	7,000,000	41	12,000,000	80	3,000,000	10
1915	8,000,000	47	8,000,000	53	2,000,000	6
1916	8,000,000	47	8,000,000	53	2,000,000	6
1917	8,000,000	47	7,000,000	47	2,000,000	6
1918	7,000,000	41	6,000,000	40	2,000,000	6
1919	7,000,000	41	8,000,000	53	2,000,000	6
1920	7,456,516	43	6,000,000	40	2,000,000	6
Total	221,390,365		82,379,000		213,413,369	

[1] Less than one-half of 1 per cent.

TABLE 9.—*Gross production of crude petroleum, in barrels of 42 gallons, in California, by fields, 1876–1920*[1]—Continued.

Year.	Santa Maria.		Lost Hills-Belridge.		Miscellaneous.	
	Barrels.	Percentage of maximum annual production.	Barrels.	Percentage of maximum annual production.	Barrels.	Percentage of maximum annual production.
1897					4,000	2
1898					3,000	1
1899					1,500	1
1900					240,945	100
1902	46,868	1			3,675	1
1903	304,850	6			30,202	15
1904	703,450	14			23,640	12
1905	3,462,909	69			10,080	4
1906	4,780,411	95			66,000	28
1907	4,946,288	98			125,473	50
1908	5,005,280	100			136,775	51
1909	5,017,455	99			58,970	24
1910	7,087,820	97	4,900	(2)	81,250	25
1911	7,465,076	96	168,410	3	45,570	13
1912	5,921,695	73	2,660,961	43	37,275	11
1913	5,317,711	67	5,274,553	84	37,275	11
1914	4,902,080	60	4,830,621	77	37,275	11
1915	4,926,940	62	4,215,980	69	37,275	11
1916	4,625,410	51	4,852,221	77	37,450	13
1917	5,705,670	67	6,205,220	100	37,275	11
1918	7,143,720	82	5,231,079	83	37,275	11
1919	6,005,910	69	4,554,221	73	37,275	11
1920	5,826,060	66	4,136,767	66	36,610	10
Total	100,046,181		42,540,722		1,043,057	

[1] No production in 1901.

[2] Less than one-half of 1 per cent.

TABLE 10.—*Average daily production per well for the principal petroleum-producing States, 1912.*

State.	Number of wells Dec. 31.	Marketed production in barrels.	Average daily production per well.
Wyoming	321	13,899,267	17.97
California	5,993	97,531,997	39.69
Louisiana	7,128	88,045,000	33.04
Texas	7,124	35,739,683	14.09
Kansas	9,952	51,451,017	14.34
Oklahoma	27,720	133,247,770	7.11
Kentucky	3,600	4,236,243	3.30
Illinois	16,004	12,965,774	2.70
Indiana	1,333	277,000	1.32
West Virginia	10,999	7,695,000	1.92
Ohio	20,000	7,385,000	.68
Pennsylvania and New York	70,367	6,216,610	.32
Other States	154	230,510	3.68
United States	209,575	515,997,714	4.79

TABLE 11.—*Gross production of crude petroleum, in barrels of 42 gallons, by 7 large interests in California, 1914–1919.*

Company.	1919		1918		1917	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
Standard Oil Co. (California)	25,434,994	25.18	22,446,021	22.08	17,756,364	18.20
Associated-Southern Pacific interests	18,444,089	18.22	18,608,967	18.31	19,554,614	20.10
Union Oil Co. of California	8,705,447	8.60	8,271,084	8.14	7,430,153	7.64
Shell Co. of California	6,702,971	6.62	6,788,962	6.68	6,262,980	6.47
Doheny companies	5,826,799	5.77	4,194,464	4.13	3,312,497	3.41
Santa Fe Railway	3,754,209	3.71	3,502,455	3.24	3,351,776	3.45
General Petroleum Corporation	3,367,361	3.34	3,555,477	3.52	4,017,668	4.13
Total	72,215,810	71.44	67,266,330	66.20	61,755,052	63.49
Other companies reporting to Commission	6,987,713	6.90	14,397,647	14.17	14,113,037	14.51
Production of companies not reporting to Commission	21,918,256	21.66	19,963,893	19.63	21,394,033	22.00
Total production of California	101,221,784	100.00	101,627,870	100.00	97,262,922	100.00

Company.	1916		1915		1914	
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
Standard Oil Co. (California)	14,265,183	15.64	12,380,208	13.80	13,530,809	13.08
Associated-Southern Pacific interests	19,601,296	21.57	18,665,987	20.84	17,219,452	16.71
Union Oil Co. of California	6,665,192	7.26	5,301,120	5.92	6,239,971	6.11
Shell Co. of California	4,751,629	5.18	3,104,044	3.47	4,222,698	[1] 4.17
Doheny companies	3,671,225	4.00	4,201,113	4.80	4,980,659	4.81
Santa Fe Railway	2,775,271	3.03	2,922,574	3.27	3,170,517	3.06
General Petroleum Corporation	[2] 1,573,146	1.71				
Total	53,606,917	58.39	46,985,055	52.10	49,674,348	47.94
Other companies reporting to Commission	12,969,527	14.15	12,986,071	14.06	16,208,127	15.64
Production of companies not reporting to Commission	25,225,918	27.47	30,335,653	33.57	37,741,230	36.42
Total production of California	91,822,362	100.00	89,306,779	100.00	103,623,695	100.00

[1] Production of Shell Co. interests taken over by the Shell Co. of California in 1915.
[2] Covers production of the last 6 months of 1916.

TABLE 12.—*Stocks of crude petroleum, in barrels of 42 gallons, in California, 1914–1920.*

Date.	Standard Oil Co.	Independent Producers' Agency.	Date.	Standard Oil Co.	Independent Producers' Agency.
	Barrels.	Barrels.		Barrels.	Barrels.
1914.			1915—Continued.		
January	46,309,980	50,620,831	July	60,409,970	59,553,209
February	46,797,206	51,141,809	August	60,102,277	59,252,689
March	46,847,738	51,208,411	September	59,624,905	58,938,911
April	46,625,570	51,196,215	October	58,677,382	57,879,270
May	33,318,025	51,891,488	November	57,790,909	56,926,643
June	33,145,937	52,240,276	December	57,147,084	55,977,149
July	32,987,436	52,940,266			
August	33,195,937	54,018,491	1916.		
September	33,027,220	55,267,409	January	57,033,867	55,980,984
October	32,924,889	56,777,189	February	56,021,089	55,279,912
November	37,971,668	58,726,236	March	54,975,706	54,436,695
December	36,886,274	58,238,119	April	53,889,824	53,622,889
1915.			May	52,672,741	51,917,794
January	39,276,201	56,980,927	June	51,199,913	51,046,289
February	40,027,206	56,808,871	July	51,120,949	50,780,447
March	40,777,130	56,626,963	August	49,713,190	49,211,268
April	40,656,177	56,770,799	September	48,466,257	47,995,695
May	41,826,215	56,626,714	October	47,215,130	46,999,703
June	42,615,209	56,584,625	November	45,914,101	45,899,571
			December	44,625,120	43,648,364

TABLE 12.—*Stocks of crude petroleum, in barrels of 42 gallons, in California, 1914–1920*—Continued.

Date.	Standard Oil Co.	Independent Producers' Agency.	Date.	Standard Oil Co.	Independent Producers' Agency.
1917.	Barrels.	Barrels.	1919.	Barrels.	Barrels.
January	43,080,154	43,294,808	January	33,398,520	28,737,582
February	42,028,194	40,987,981	February	33,071,030	28,514,643
March	41,172,861	39,645,275	March	32,495,823	28,092,218
April	39,976,268	38,525,420	April	33,543,145	28,613,499
May	38,821,089	37,043,544	May	34,109,617	29,459,137
June	37,320,269	35,615,748	June	33,498,897	29,105,854
July	35,781,229	34,125,984	July	33,883,519	29,558,668
August	35,217,463	33,967,745	August	33,705,268	30,255,945
September	34,654,097	34,196,007	September	33,899,435	30,139,988
October	33,795,115	33,793,800	October	33,017,957	29,186,093
November	32,628,620	33,212,783	November	31,159,020	28,261,977
December	32,450,405	32,646,062	December	30,480,232	27,904,381
1918.			1920.		
January	31,772,665	31,913,095	January	29,611,625	26,669,729
February	31,260,278	31,241,254	February	30,735,021	28,059,174
March	30,821,216	31,022,780	March	27,578,264	24,805,470
April	30,289,748	30,326,980	April	27,111,994	24,422,175
May	29,362,438	30,086,718	May	26,501,227	23,914,627
June	30,047,232	30,207,175	June	26,270,903	23,748,593
July	30,222,910	30,956,122	July	24,408,752	21,826,243
August	29,703,988	29,185,591	August	23,434,464	20,992,617
September	30,095,465	28,820,063	September	23,168,627	20,889,217
October	31,222,852	30,022,456	October	22,545,020	19,905,849
November	32,265,749	29,208,479	November	22,563,204	19,983,692
December	32,042,929	28,145,368	December	22,240,271	19,815,986

TABLE 13.—*Balance sheets, Standard Oil Co. (California), as shown by company's records, 1914–June 30, 1919.*

Item.	1914	1918	1919
ASSETS.			
Fixed assets:			
Plant account, etc.	$74,777,522.98	$79,565,460.79	$85,809,060.23
Less depreciation	10,184,074.01	14,392,414.92	19,038,204.47
Net fixed assets	64,593,558.97	64,193,045.87	66,771,855.76
Current assets:			
Cash	1,173,377.30	1,999,662.73	2,946,755.47
Accounts receivable	4,774,145.22	5,301,229.60	7,999,273.77
Notes receivable	316,369.71	91,521.27	69,432.67
Inventory, oil	22,700,541.79	22,362,569.31	21,949,052.22
Inventory, material, etc.	2,960,276.82	2,754,760.93	4,332,213.66
Total current assets	31,854,470.70	32,509,904.04	36,944,725.79
Deferred charges	148,465.37	312,716.15	445,952.13
Investments	80,000.00	99,366.36	99,366.36
Total	96,476,494.04	96,982,032.42	104,261,449.68
LIABILITIES.			
Capital stock	49,500,655.35	49,688,655.35	71,220,962.99
Current liabilities:			
Accounts payable	5,070,645.02	3,754,413.77	3,827,961.98
Notes payable	2,000,000.00		
Stock premium	280,000.00	280,000.00	280,000.00
Surplus	39,625,203.67	43,261,020.91	27,842,514.51
Total	96,476,504.04	96,982,032.42	104,261,449.68

TABLE 13.—*Balance sheets, Standard Oil Co. (California), as shown by company's records, 1914–June 30, 1919*—Continued.

Item.	1917	1918	1919[1]
ASSETS.			
Fixed assets:			
Plant account, etc.	$141,496,318.20	$152,222,995.12	$159,967,902.52
Less depreciation	28,308,630.05	40,838,942.05	47,310,999.63
Net fixed assets	113,187,688.15	111,538,964.07	112,656,902.89
Current assets:			
Cash	5,258,736.97	8,789,437.09	5,114,704.97
Accounts receivable	19,278,819.99	13,141,449.67	12,080,735.47
Notes receivable	99,273.24	102,717.47	126,702.75
Inventory, oil	13,759,720.40	18,145,008.24	21,640,625.65
Inventory, material, etc.	8,699,843.84	11,433,374.65	11,106,361.46
Liberty loan accounts	1,007,992.77	2,665,080.50	1,463,981.70
Total current assets	48,596,109.21	54,325,647.72	51,532,774.00
Deferred charges	730,510.99	902,681.29	1,293,913.75
Investments	126,619.62	157,960.63	182,668.45
Investments, Government	1,550,000.00	10,102,269.04	7,777,272.04
Total	158,190,911.16	175,985,512.75	173,330,731.61
LIABILITIES.			
Capital stock	90,373,310.83	90,373,310.83	90,373,310.83
Current liabilities:			
Accounts payable	4,515,209.42	4,542,225.57	3,188,971.20
Notes payable	[2] 564,087.75	[3] 1,110,781.43	[4] 442,272.61
Income tax	5,520,116.50	12,406,462.10	5,000,000.00
Liberty loan accounts	797,400.00	2,240,300.00	1,962,192.00
Adjustment	1,863.80		[5] 851,547.00
Suspended earnings		439,537.57	651,167.69
Stock premium	250,000.00	250,000.00	250,000.00
Surplus	47,478,783.55	49,574,814.95	50,650,159.60
Total	159,130,911.16	175,985,512.75	173,330,731.61

[1] June 30.
[2] Merchandise due on contract.
[3] Compensation.

TABLE 14.—*Fixed investment, by departments, Standard Oil Co. (California), 1904 and 1914–June 30, 1919.*

Year.	Refining.	Marketing.	Producing.	Pipe lines.
1904	$2,119,548.81		$271,212.99	$9,212,995.99
1914	18,961,518.99	$6,759,494.15	26,791,995.99	14,578,295.46
1915	19,515,662.52	7,487,119.76	30,656,267.28	14,690,268.04
1916	21,612,971.87	9,017,648.70	35,698,911.99	14,994,894.64
1917	24,280,082.03	10,616,205.59	51,645,413.32	15,614,077.27
1918	27,999,915.13	12,149,091.15	66,122,195.36	15,426,972.96
1919[1]	29,441,626.52	13,248,288.98	92,047,391.03	15,708,749.33

Year.	Marine.	Other.	Total.
1904	$435,072.05	$6,995.55	$9,045,825.39
1914	4,510,275.72	1,367,668.06	74,777,253.92
1915	4,525,731.08	1,199,272.71	78,065,469.79
1916	5,267,257.52	1,272,612.91	80,859,296.63
1917	7,041,732.96	1,268,705.69	141,496,318.20
1918	7,201,668.52	1,401,113.70	152,222,995.12
1919[1]	7,010,843.14	1,411,092.66	159,967,902.52

[1] June 30.

TABLE 15.—*Income account, Standard Oil Co. (California), as shown by company's records, 1914–June 30, 1919.*

Item.	1914	1915	1916
Gross sales of oil	$35,962,499.37	$37,695,404.95	$65,434,630.34
Used, burned, etc.	1,027,528.11	2,057,332.14	2,295,133.61
Total	30,091,298.96	39,642,737.09	67,729,762.85
Less package	1,048,993.09	1,195,726.01	1,985,142.62
Transportation	4,336,303.21	6,424,781.03	7,301,994.74
Trade discount	104,436.47	105,957.63	233,106.72
Marketing expense	4,114,535.09	4,571,060.73	6,189,903.45
Total	9,604,226.06	12,300,077.45	15,889,294.59
Net sales at refinery	30,087,072.92	27,342,659.64	41,900,898.26
Cost of sales:			
Cost of crude and equivalent	22,635,298.98	17,519,730.64	32,426,589.09
Refinery operating	5,734,512.98	5,648,756.04	6,300,412.15
Transportation	430,695.09	455,531.06	628,077.85
Purchased products	581,556.30	677,851.17	1,035,201.10
Inventory (increase or decrease)	−943,060.70	880,993.82	−389,743.54
Total	28,519,991.41	24,980,632.73	40,229,539.96
Net profit on oil sold	1,568,081.51	2,362,026.91	1,670,978.40
Other income:			
Oil-producing property	3,709,944.24	1,784,422.10	3,193,129.09
Pipe lines	2,921,749.50	2,089,922.25	3,000,312.20
Marine	382,727.80	1,174,734.46	668,900.58
Lamps, stoves, etc.	4,330.75	214,792.81	165,090.54
Rent	3,327.60	1,960.63	4,426.50
Interest and exchange	−1,821.54	−27,404.12	92,404.45
Miscellaneous	1,476,171.21	1,466,432.92	1,722,893.14
Total income	10,065,721.07	9,361,913.06	16,695,151.63
Deductions:			
Donations	14,048.50	2,933.63	7,249.27
Worthless accounts	130,389.56	169,178.80	137,192.82
General taxes	257,006.40	302,532.96	332,653.24
Sundries	30,907.39	185,903.85	190,235.73
Total	430,302.85	661,434.26	667,421.16
Net income	9,635,518.22	8,700,488.81	16,017,730.47

Item.	1917	1918	1919[1]
Gross sales of oil	$79,923,945.31	$105,092,572.24	$51,065,092.73
Used, burned, etc.	2,982,478.66	4,638,114.45	2,070,130.66
Total	81,676,043.67	109,630,686.69	53,135,213.40
Less package	2,120,223.00	3,235,093.96	2,005,632.12
Transportation	8,362,180.47	10,630,243.06	4,620,220.47
Trade discount	214,989.11	913,158.22	205,990.98
Marketing expense	8,790,564.12	11,896,098.30	7,542,541.85
Total	20,773,956.70	26,574,593.60	14,369,057.42
Net sales at refinery	61,102,086.47	79,056,094.09	38,976,156.00
Cost of sales:			
Cost of crude and equivalent	46,668,736.92	60,923,627.20	34,198,070.93
Refinery operating	9,420,042.24	11,894,221.49	7,726,516.34
Transportation	939,982.49	977,195.71	554,286.78
Purchased products	1,685,694.53	1,574,690.48	1,142,130.69
Inventory (increase or decrease)	215,948.59	−26,247.49	−361,429.69
Total	58,311,214.59	64,170,698.45	33,969,682.05
Net profit on oil sold	2,791,643.88	12,885,710.64	5,006,382.99
Other income:			
Oil-producing property	8,641,938.28	14,648,283.21	9,187,665.29
Pipe lines	20,440,196.60	8,945,173.97	1,208,231.42
Marine	664,677.30	1,863,219.49	699,788.23
Lamps, stoves, etc.	426,472.64	393,488.34	77,512.63

[1] First 6 months.

TABLE 15.—*Income account, Standard Oil Co. (California), as shown by company's records, 1914–June 30, 1919*—Continued.

Item.	1917	1918	1919
Other income—Continued.			
Rent	328,425.94	$36,573.82	$22,725.20
Interest and exchange	102,453.08	428,600.33	198,248.24
Miscellaneous	2,040,775.16	1,966,208.60	1,307,550.94
Total income	24,967,033.80	27,055,367.75	18,190,443.38
Deductions:			
Donations	145,242.75	272,761.80	73,351.88
Worthless accounts	114,586.69	81,632.92	54,288.63
General taxes	795,098.01		
Sundries	285,902.50	553,379.67	169,516.34
Total	1,440,829.95	907,794.39	303,756.87
Net income	23,526,173.85	26,147,573.36	17,886,686.48

TABLE 16.—*Company's net and Commission's revised investment in petroleum business, Standard Oil Co. (California), 1914–June 30, 1919.*

Item.	1914	1915	1916
Company's investment:			
Capital stock	$40,000,655.25	$40,000,655.25	$74,530,982.09
Notes	2,000,000.00		
Stock premium account	250,000.00	250,000.00	250,000.00
Reserve (income tax)			
Surplus	39,409,203.66	43,301,026.91	27,642,514.51
Total	91,465,858.91	93,137,682.26	102,323,497.60
Deduct:			
Liberty bond account			
Stocks and bonds	80,000.00	99,369.26	99,369.26
Government securities			
Total	80,000.00	99,369.26	99,369.26
Less Liberty loan credits			
Net deductions	80,000.00	99,369.26	99,369.26
Company's investment in oil business	91,385,858.91	93,038,312.90	102,224,128.34
Add:			
Adjustment to balance			
Geological expense	3,437.43	8,400.13	24,946.97
Depreciation and depletion adjustment	96,233.92	300,171.95	1,236,481.18
Total addition	99,681.35	308,572.08	1,261,428.15
Deduct:			
Deferred charges	148,465.37	312,716.18	443,606.92
Additional compensation			
Appreciation	8,474,669.33	8,474,669.33	8,474,669.33
Total deduction	8,623,134.70	8,787,375.49	8,920,167.91
Net deduction	8,523,453.35	8,417,803.41	7,658,739.76
Revised investment in oil business	82,962,395.66	84,620,509.49	94,565,388.58

Item.	1917	1918	1919[1]
Company's investment:			
Capital stock	$99,373,310.92	$99,373,310.92	$99,373,310.92
Notes			
Stock premium account	250,000.00	250,000.00	250,000.00
Reserve (income tax)	5,220,416.50	12,405,482.10	5,446,666.69
Surplus	47,478,765.53	46,574,814.95	40,616,735.09
Total	152,322,492.95	158,603,607.97	145,686,712.70

[1] June 30.

TABLE 16.—*Company's net and Commission's revised investment in petroleum business, Standard Oil Co. (California), 1914–June 30, 1919*—Continued.

Item.	1917	1918	1919
Deduct:			
Liberty bond account	$1,007,892.77	$2,995,080.80	$1,498,202.70
Stocks and bonds	129,610.63	157,980.63	168,260.63
Government securities	1,550,000.00	10,102,280.04	7,777,210.04
Total	2,684,303.40	13,255,260.17	9,443,413.37
Less Liberty loan credits	797,400.00	2,249,300.00	2,043,100.00
Net deductions	1,887,103.40	10,705,960.17	8,399,223.37
Company's investment in oil business	151,045,060.48	154,897,507.71	159,073,633.06
Add:			
Adjustment to balance	1,302.89		
Geological expense	45,633.53	89,673.57	94,707.54
Depreciation and depletion adjustment	4,810,300.01	12,004,101.91	15,679,548.19
Total addition	4,857,297.43	12,093,870.48	15,776,255.53
Deduct:			
Deferred charges	730,510.99	882,631.29	1,288,918.75
Additional compensation			951,547.00
Appreciation	47,087,428.80	46,748,429.43	46,378,946.27
Total deduction	47,817,939.79	47,631,120.72	48,624,412.02
Net deduction	43,960,639.36	35,558,250.24	32,848,156.49
Revised investment in oil business	108,084,450.12	119,339,247.47	126,225,606.57

TABLE 17.—*Company's income and Commission's revised income from petroleum business, Standard Oil Co. (California), 1914–June 30, 1919.*

Item.	1914	1915	1916
Company's income from entire business	89,835,518.29	95,700,488.81	316,017,730.47
Deduct interest and exchange			
Company's net income from oil business	9,835,518.29	8,700,488.81	16,017,730.47
Add:			
Geological expense	3,437.43	5,062.70	13,566.84
Depreciation adjustment	98,223.72	283,943.03	356,209.23
Abandoned property	433,771.47		541,693.49
Adjustment of appreciation			
Suspended earnings			
Total	535,432.32	289,910.73	1,413,339.56
Revised income from oil business	10,080,951.04	8,990,399.54	17,431,270.03

Item.	1917	1918	1919[1]
Company's income from entire business	823,326,172.95	330,147,572.26	317,926,056.42
Deduct interest and exchange	102,432.05	456,800.33	185,165.20
Company's net income from oil business	25,423,740.90	35,790,972.93	17,700,891.22
Add:			
Geological expense	29,885.34	23,045.04	30,026.77
Depreciation adjustment	1,044,884.16	1,967,445.13	730,909.13
Abandoned property	319,813.45	322,476.60	150,774.13
Adjustment of appreciation	256,906.27	220,926.27	140,463.16
Suspended earnings		459,537.37	141,650.13
Total	1,724,371.30	3,039,491.00	1,294,525.30
Revised income from oil business	25,148,692.10	38,792,683.53	18,995,056.52

[1] First 6 months.

TABLE 18.—*Balance sheets, Union Oil Co. of California, as shown by company's records, 1914–June 30, 1919.*

Item.	1914	1915	1916
ASSETS.			
Fixed assets:			
Plant account	$43,228,173.04	$44,513,231.89	$46,015,734.3
Less depreciation	6,297,384.46	8,363,071.20	9,038,168.7
Net fixed assets	36,930,788.58	36,149,360.79	36,977,565.6
Current assets:			
Cash	951,204.94	1,061,217.76	2,005,753.9
Accounts receivable	3,215,226.65	3,400,220.56	4,770,369.9
Notes receivable			
Inventory, crude oil	4,268,215.23	4,295,159.99	5,063,288.9
Inventory, refined oil	1,070,288.01	1,230,410.13	1,631,015.6
Inventory, material and supplies	709,219.11	831,013.89	1,262,895.9
Deferred charges	233,262.23	275,883.67	326,105.7
Affiliated companies: Accounts receivable	1,188,938.84	1,162,633.14	830,947.7
Investments:			
Stock and bonds (other companies)	12,013,349.09	10,002,677.73	11,096,530.9
Other			
Total assets	60,578,317.70	59,504,748.10	64,068,977.6
LIABILITIES.			
Capital stock	33,745,900.00	34,092,200.00	34,692,200.0
Funded debt, bonds and mortgages	8,240,000.00	8,002,000.00	8,611,000.0
Invested notes	3,954,714.74	2,326,915.02	2,465,363.3
Purchase money obligations			
Current liabilities:			
Accounts payable	1,026,362.54	851,618.71	1,943,000.0
Notes payable	1,600,000.00	1,300,000.00	
Accrued liabilities	90,186.82	67,900.59	138,543.9
Reserves	192,500.00	206,722.58	314,010.4
Surplus	11,728,672.60	11,617,391.20	16,581,391.9
Total liabilities	60,578,317.70	59,504,748.10	64,068,377.6

Item.	1917	1918	1919[1]
ASSETS.			
Fixed assets:			
Plant account	$53,919,619.73	$70,513,510.63	$[illegible]
Less depreciation	14,863,660.01	19,076,435.54	17,770,748.0
Net fixed assets	49,055,959.72	51,437,075.09	51,739,475.2
Current assets:			
Cash	2,610,057.92	3,093,990.40	4,177,283.0
Accounts receivable	4,134,910.82	7,117,978.56	5,998,968.7
Notes receivable			
Inventory, crude oil	7,095,712.19	7,197,662.94	6,581,579.0
Inventory, refined oil	2,911,798.94	2,731,131.58	3,296,662.4
Inventory, material and supplies	1,964,225.62	2,674,765.19	2,772,188.0
Deferred charges	260,268.10	435,188.51	661,688.3
Affiliated companies: Accounts receivable	1,177,538.43	574,170.43	930,943.6
Investments:			
Stocks and bonds (other companies)	4,298,949.05	3,119,727.12	3,475,289.6
Other	1,151,200.00	1,523,575.22	3,706,980.0
Total assets	77,799,107.00	80,273,664.24	82,162,445.3
LIABILITIES.			
Capital stock	39,310,100.00	43,267,200.00	43,571,200.0
Funded debt, bonds and mortgages	11,466,000.00	11,221,000.00	11,221,000.0
Invested notes	200,000.00		
Purchase money obligations	761,833.58	589,790.96	573,434.1
Current liabilities:			
Accounts payable	2,263,947.63	2,967,344.57	3,932,494.1
Notes payable			
Accrued liabilities	1,479,297.28	2,022,221.52	1,666,786.2
Reserves	455,212.20	495,260.26	511,016.0
Surplus	21,327,396.21	19,230,716.40	20,536,773.7
Total liabilities	77,799,107.00	80,273,664.24	82,162,445.3

[1] June 30.

TABLE 19.—*Fixed investment by departments, Union Oil Co. of California, 1914–June 30, 1919.*

Year.	Refining.	Marketing.	Producing.	Pipe lines.
1914	$3,433,703.73	$3,721,395.05	$30,356,467.95	$3,627,122.11
1915	4,230,380.09	4,061,013.01	30,330,179.99	4,041,202.81
1916	4,270,897.97	4,225,631.51	30,964,674.47	4,227,963.45
1917	5,027,585.65	5,010,930.46	36,885,018.28	10,311,979.05
1918	6,045,688.26	6,461,451.88	45,573,960.21	10,305,681.24
1919[1]	5,930,777.34	7,697,819.12	49,506,498.30	10,497,223.74

Year.	Marine.	Other.	Total.
1914	$3,413,301.13	$617,197.21	$43,169,176.04
1915	4,305,477.39	605,179.17	47,313,231.65
1916	5,305,676.04	617,705.27	49,612,784.21
1917	5,313,630.73	663,748.76	66,212,613.73
1918	5,095,664.39	.....	73,511,445.83
1919[1]	5,094,228.03	653,579.69	76,480,326.65

[1] June 30.

TABLE 20.—*Income account, Union Oil Co. of California, as shown by company's records, 1914–June 30, 1919.*

Item.	1914	1915	1916
Gross sales	$10,096,921.68	$19,348,143.15	$27,737,306.97
Less packages	.....	210,627.61	268,920.41
Transportation	.....	4,970,235.14	6,429,334.84
Marketing expense	1,305,044.38	2,558,356.08	3,056,044.94
Total	1,305,044.38	7,748,218.83	9,954,302.19
Net sales at refinery	8,931,877.30	11,499,924.32	17,903,102.78
Cost of sales:			
Cost of crude and equivalent	6,095,342.43	10,095,344.41	14,718,668.28
Refinery operating	1,008,164.38	1,081,255.67	1,442,222.29
Purchased products	.....	30,128.35	69,223.79
Inventory (increase or decrease)	681,630.56	−321,147.25	−78,255.64
Total cost of sales	7,783,137.55	10,884,579.08	16,150,208.30
Net profit on oil sold	1,048,439.75	615,345.24	1,652,897.50
Other income:			
Oil-producing property	723,623.08	623,217.37	2,679,779.69
Pipe lines	274,943.03	232,189.24	772,681.08
Marine	253,908.28	1,195,655.43	1,488,285.03
Dividends received	1,082,295.28	623,547.43	1,667,488.03
Miscellaneous	6,413.22	30,484.17	6,268.25
Total income	4,070,612.67	3,320,482.90	7,782,223.98
Deductions:			
Interest	628,003.47	330,363.13	481,750.01
Taxes, income	.....	.....	57,884.19
Taxes, excess profits	.....	.....	.....
Other operations	712,065.77	.....	.....
Total	1,335,069.24	330,363.13	539,702.20
Net income	2,735,534.43	2,919,139.13	7,234,663.68

TABLE 20.—*Income account, Union Oil Co. of California, as shown by company's records, 1914–June 30, 1919*—Continued.

Item.	1917	1918	1919[1]
Gross sales	922,911,301.22	943,932,542.53	325,094,336.75
Less packages	259,499.77	284,319.71	
Transportation	6,564,264.16	4,225,193.44	2,405,256.77
Marketing expense	4,205,530.39	4,825,209.51	2,533,174.38
Total	11,029,394.32	9,778,722.66	4,968,679.92
Net sales at refinery	22,884,906.90	34,173,789.87	19,125,677.01
Cost of sales:			
Cost of crude and equivalent	19,540,784.17	30,114,188.03	15,015,745.80
Refinery operating	1,703,542.14	2,765,917.21	1,709,924.94
Purchased products	140,059.51	161,585.17	34,104.15
Inventory (increase or decrease)	−659,075.38	−8,351.57	163,094.72
Total cost of sales	20,825,310.44	32,633,306.94	16,922,869.44
Net profit on oil sold	2,059,596.36	1,540,482.93	2,202,808.57
Other income:			
Oil-producing property	4,257,244.17	4,771,522.95	3,053,519.86
Pipe lines	81,704.44	697,267.08	277,223.84
Marine	1,751,098.57	224,985.13	−177,554.65
Dividends received	1,980,209.27	272,372.14	300,191.07
Miscellaneous	18,854.17		
Total income	9,538,708.98	8,108,641.10	5,736,706.64
Deductions:			
Interest	576,472.11	533,801.85	138,084.39
Taxes, income	1,281,498.87	1,550,000.00	
Taxes, excess profits	56,253.87		
Other operations			
Total	1,914,422.85	2,083,801.85	138,084.39
Net income	7,642,294.13	6,023,139.25	5,570,712.39

[1] First 6 months.

TABLE 21.—*Company's net and Commission's revised investment in petroleum business, Union Oil Co. of California, 1914–June 30, 1919.*

Item.	1914	1915	1916
Company's investment:			
Capital stock	25,745,000.00	34,082,300.00	34,082,300.00
Bonds	8,245,000.00	8,032,000.00	8,611,000.00
Collateral notes	2,000,000.00	2,000,000.00	1,310,000.00
Purchase money obligations	965,714.74	336,915.02	1,146,202.39
Surplus	11,795,672.60	11,617,351.20	14,861,881.85
Company's total investment	57,750,387.34	56,228,466.22	61,738,184.13
Deduct:			
Stocks and bonds in other companies	12,012,349.09	10,003,577.73	11,000,000.00
Affiliated companies—accounts receivable	1,186,926.86	1,168,432.14	838,942.71
Total deductions	13,199,175.95	11,171,310.87	11,921,479.61
Company's investment in oil business	44,550,111.39	45,057,155.35	49,809,675.52
Other deductions:			
Deferred charges	220,202.20	275,823.07	295,905.71
Depreciation and depletion adjustment	348,373.13	468,097.74	455,942.94
Appreciation	8,604,534.80	8,604,534.80	8,604,534.80
Total, other deductions	9,173,109.13	9,348,473.61	9,356,373.45
Commission's revised investment in oil business	35,403,811.39	35,708,679.74	40,453,702.06

TABLE 21.—*Company's net and Commission's revised investment in petroleum business, Union Oil Co. of California, 1914–June 30, 1919*—Continued.

Item.	1917	1918	1919[1]
Company's investments:			
Capital stock	$39,510,100.00	$43,597,000.00	$43,571,500.00
Bonds	11,625,000.00	11,531,000.00	11,093,000.00
Collateral notes	200,000.00		
Purchase money obligations	701,653.58	598,790.36	575,616.14
Surplus	21,237,886.21	19,336,716.40	22,405,772.79
Company's total investment	73,587,639.79	74,615,007.36	77,685,488.93
Deduct:			
Stocks and bonds in other companies	5,295,919.06	3,113,727.12	1,475,295.64
Government securities	1,151,250.00	1,553,575.32	2,208,995.05
Affiliated companies—accounts receivable	1,177,839.43	974,170.43	880,545.33
Total deductions	7,616,037.49	5,646,472.86	5,060,179.52
Company's investment in oil business	65,971,602.30	69,268,534.40	69,619,709.35
Other deductions:			
Deferred charges	280,263.10	435,199.51	451,922.14
Depreciation and depletion adjustment	516,919.09	45,048.09	[2] 74,274.55
Appreciation	5,004,324.80	5,004,324.80	5,004,324.80
Incidental drilling			[2] 632,527.57
Total, other deductions	9,301,736.99	9,087,784.40	8,233,044.86
Commission's revised investment in oil business	56,469,865.31	60,180,770.00	61,386,664.49

[1] June 30. [2] Addition.

TABLE 22.—*Company's income and Commission's revised income from petroleum business, Union Oil Co. of California, 1914–June 30, 1919.*

Item.	1914	1915	1916
Income as shown by company	$2,735,834.43	$2,819,139.18	$7,204,563.68
Add income tax			97,094.19
Company's total income	2,735,834.43	2,819,139.18	7,301,657.87
Add interest	505,255.77	462,262.62	494,779.77
Deduct dividends received	1,082,260.86	665,347.42	1,665,685.68
Net deductions	576,994.79	206,954.79	1,160,870.45
Company's net income from oil business	2,158,839.64	2,612,274.39	6,140,927.42
Deduct:			
Depreciation and depletion adjustment	348,382.13	109,714.61	[1] 82,154.60
Abandoned property			
Incidental drilling			
Total deductions	348,382.13	109,714.61	[1] 82,154.60
Net revised income	1,810,266.51	2,502,159.78	6,178,082.22

Item.	1917	1918	1919[2]
Income as shown by company	$7,642,264.13	$6,022,139.35	$4,570,712.39
Add income tax	1,281,636.87	1,850,000.00	
Company's total income	8,923,901.00	7,872,139.35	4,570,712.39
Add interest	540,957.93	577,933.23	293,163.33
Deduct dividends received	1,992,209.27	272,576.14	293,169.07
Net deductions	813,251.35	[1] 305,430.65	30,005.80
Company's net income from oil business	8,110,739.65	7,575,508.35	4,540,676.71
Deduct:			
Depreciation and depletion adjustment	110,976.15	[1] 469,273.00	[1] 132,393.04
Abandoned property			[1] 27,144.94
Incidental drilling			[1] 653,527.53
Total deductions	110,976.15	[1] 469,273.00	[1] 813,065.11
Net revised income	7,999,763.50	8,347,442.93	6,353,973.82

[1] Addition. [2] First 6 months.

TABLE 23.—*Balance sheets, Associated Oil Co., as shown by company's records, 1914-June 30, 1919.*

Item.	1914	1915	1916
ASSETS.			
Plant account	$53,908,642.96	$59,985,354.77	$60,074,715.57
Less depreciation	9,310,231.27	11,409,862.76	13,896,186.89
Net fixed assets	46,598,411.69	45,525,202.01	46,178,528.68
Current assets:			
Cash	1,960,276.89	2,405,294.44	1,490,938.53
Accounts receivable	1,239,735.89	1,405,240.53	2,052,446.27
Notes receivable	25,140.88	7,251.73	31,230.37
Inventory, oil	3,252,845.40	3,041,159.09	1,995,694.22
Inventory, material and supplies	148,771.67	143,280.09	488,987.73
Inventory, other	225,877.23	125,182.01	125,705.55
Total	6,330,644.66	6,138,209.91	6,043,225.91
Deferred charges	1,660,443.19	1,671,209.77	1,256,461.28
Affiliated companies:			
Accounts and notes receivable	1,756,477.22	1,827,840.52	1,679,241.22
Stocks and bonds	5,152,347.09	5,141,097.09	5,032,220.14
Investments:			
Other stocks and bonds	102,998.00	161,613.00	161,613.00
Other			
Other assets (sinking fund)	830,378.69	972,514.19	1,045,347.59
Total assets	63,375,060.39	61,040,645.79	61,362,610.62
LIABILITIES.			
Capital stock	39,738,482.00	39,737,404.00	39,738,782.00
Funded debt	15,252,000.00	13,261,000.00	13,288,000.00
Current liabilities:			
Accounts payable	353,547.23	937,342.55	1,317,351.11
Notes payable			312,500.00
Accrued liabilities	1,497,416.90	1,231,391.71	576,803.29
Total	2,060,964.13	1,968,736.26	2,407,154.40
Affiliated companies:			
Accounts payable	40,919.71	51,686.26	272,608.21
Reserves			
Surplus	6,273,344.70	5,981,826.17	6,657,067.01
Total	63,375,060.39	61,040,645.79	61,362,610.62

Item.	1917	1918	1919 [1]
ASSETS.			
Plant account	$63,359,122.90	$63,427,590.73	$64,912,497.31
Less depreciation	16,590,459.13	19,045,499.07	20,297,992.51
Net fixed assets	46,768,663.77	44,381,091.21	44,614,504.80
Current assets:			
Cash	1,648,927.03	1,225,414.04	426,696.91
Accounts receivable	2,952,782.63	2,287,309.95	3,225,975.27
Notes receivable	30,951.45	49,136.70	30,213.39
Inventory, oil	2,794,699.41	2,842,668.10	4,447,252.29
Inventory, material and supplies	921,526.74	1,413,705.97	1,329,645.38
Inventory, other	151,062.40	207,980.55	450,257.41
Total	8,440,169.71	8,026,464.30	9,910,040.65
Deferred charges	1,221,159.45	1,031,076.32	1,151,295.66
Affiliated companies:			
Accounts and notes receivable	1,247,280.19	1,995,975.92	2,175,462.62
Stocks and bonds	6,416,984.28	6,377,715.77	7,137,760.77
Investments:			
Other stocks and bonds	161,613.00	161,613.00	155,995.00
Other	426,495.97	2,980,982.47	2,495,573.81
Other assets (sinking fund)	920,857.55	902,231.62	462.57
Total assets	64,770,552.81	65,221,613.89	68,909,595.73

[1] June 30.

TABLE 23.—*Balance sheets, Associated Oil Co., as shown by company's records, 1914–June 30, 1919*—Continued.

Item.	1917	1918	1919
LIABILITIES.			
Capital stock	$30,700,641.09	$30,700,234.00	$30,700,142.00
Funded debt	12,517,797.80	10,000,000.00	10,731,000.00
Current liabilities:			
Accounts payable	4,000,622.71	2,001,589.99	2,013,544.94
Notes payable	112,808.00		
Accrued liabilities	553,421.32	1,111,438.99	2,472,315.31
Total	4,666,744.03	3,173,028.98	4,485,860.25
Affiliated companies:			
Accounts payable	186,968.48	189,140.99	202,542.27
Reserves			275,000.00
Surplus	7,541,975.90	9,939,118.97	11,201,419.21
Total	54,770,552.81	60,301,012.96	66,995,963.73

TABLE 24.—*Fixed investment*[1] *by departments, Associated Oil Co., 1914–June 30, 1919.*

Year.	Refining.	Marketing.	Producing.	Pipe lines.
1914	$1,362,786.12	$259,676.37	$24,906,382.44	$6,644,139.70
1915	1,527,636.65	918,588.39	23,745,694.61	6,329,645.74
1916	1,660,476.89	1,236,588.73	23,677,288.88	6,827,524.38
1917	1,983,657.76	1,343,972.61	23,343,726.47	6,933,726.82
1918	3,000,797.27	1,386,634.14	23,123,091.07	6,799,980.69
1919[2]	3,212,971.80	1,440,686.76	22,362,081.31	6,642,706.13

Year.	Marine.	Other.	Total.
1914	$2,662,676.19	$379,312.05	$36,660,471.86
1915	2,696,018.35	230,272.73	41,228,852.01
1916	2,822,908.71	225,664.39	36,778,551.09
1917	2,945,154.90	122,260.21	38,949,698.77
1918	3,156,810.20	86,994.80	44,264,081.23
1919[2]	3,082,791.73	82,155.98	44,614,555.90

[1] Net investment. [2] June 30.

TABLE 25.—*Income account, Associated Oil Co., as shown by company's records, 1914–June 30, 1919.*

Item.	1914	1915	1916
Gross sales	$12,279,269.71	$12,835,454.27	$17,732,498.89
Less transportation	1,950,940.65	1,910,622.59	2,688,552.61
Less marketing expense	572,723.62	662,328.28	897,846.49
Total	2,493,764.27	2,572,950.87	3,586,399.10
Net sales	9,785,445.44	9,962,261.30	14,170,761.79
Cost of sales:			
Crude oil etc., to refineries	3,715,897.27	4,035,681.05	5,705,148.46
Crude inventory (increase or decrease)	170,218.85	55,626.27	[1] 233,761.09
Refinery operating	845,163.61	885,625.32	894,466.77
Purchased products	1,142.18	32,427.45	31,666.69
Crude fuel oil	4,105,780.67	4,375,681.70	4,449,672.38
Inventory fluctuations refined etc	899,134.05	1,178,666.44	336,035.76
Total	10,717,036.61	10,573,342.04	11,688,139.80
Net profit on oil sold	[1] 779,905.27	[1] 913,589.13	[1] 1,705,267.60

[1] Loss.

TABLE 25.—*Income account, Associated Oil Co., as shown by company's records, 1914–June 30, 1918*—Continued.

Item.	1914	1915	1916
Income, other operations, etc.:			
Production	[1] $473,819.04	[1] $265,227.61	$1,324,789.44
Pipe lines	2,074,785.52	2,726,902.47	2,852,834.90
Marine	212,302.52	277,998.94	307,220.03
Tank cars	[1] 41,309.02	[1] 26,438.10	[1] 35,770.64
Dividends	406,451.26	465,819.13	405,277.50
Interest	15,245.77	120,732.09	105,865.20
Miscellaneous earnings	512,307.17	491,950.52	512,220.44
Gross income	2,122,281.13	2,579,429.13	2,913,770.66
Deductions:			
Interest funded debt	704,492.12	748,407.46	620,760.13
Interest, other	1,771.33	80,438.13	57,920.66
Income tax	11,972.74	18,022.13	80,277.94
Bond discount	80,518.28	99,244.11	77,720.94
Miscellaneous		41,758.75	44,441.37
Total deductions	807,704.47	985,973.58	881,122.04
Net income	1,254,516.66	1,593,455.55	2,032,612.62

Item.	1917	1918	1919[2]
Gross sales	$24,591,673.28	$27,347,119.72	$14,206,127.90
Less transportation	1,994,271.98	2,575,994.85	1,264,966.76
Less marketing expense	1,201,982.99	1,665,770.74	897,970.74
Total	3,196,270.91	4,261,765.59	2,162,969.50
Net sales	21,405,302.37	22,985,354.13	12,003,174.41
Cost of sales:			
Crude oil etc., to refineries	11,462,541.55	11,712,290.48	6,260,289.82
Crude inventory (increase or decrease)	262,038.92	[1] 170,835.86	[1] 269,720.09
Refinery operating	702,252.94	979,090.47	516,295.54
Purchased products	105,081.49	270,235.25	262,097.36
Crude fuel oil	11,151,568.23	8,296,220.98	5,269,111.01
Inventory fluctuations refined etc.	[1] 1,118,985.11	131,221.11	[1] 1,233,939.09
Total	22,716,169.02	21,197,133.43	11,031,253.95
Net profit on oil sold	[1] 1,310,865.65	1,788,220.70	1,049,955.46
Income, other operations, etc.:			
Production	3,097,372.57	3,101,889.63	1,489,735.79
Pipe lines	1,916,273.24	1,982,889.89	459,645.49
Marine	827,712.76	1,302,827.12	463,013.76
Tank cars	[1] 82,480.98	[1] 26,663.92	[1] 6,612.96
Dividends	156,168.35	83,177.99	17,885.00
Interest	94,186.71	140,284.07	76,124.49
Miscellaneous earnings	617,370.08	697,301.05	242,057.05
Gross income	4,994,148.80	8,133,917.16	3,230,914.76
Deductions:			
Interest funded debt	559,464.25	537,514.58	239,142.92
Interest, other	152,749.30	143,938.16	15,943.99
Income tax	172,117.60	2,093,942.07	767,710.31
Bond discount	74,641.72	66,971.66	29,223.75
Miscellaneous	46,797.26	[1] 32,388.63	[1] 17,382.33
Total deductions	1,005,113.31	2,520,362.07	1,023,911.35
Net income	3,849,034.19	4,008,555.09	2,706,993.40

[1] Loss.

[2] First 6 months.

TABLE 20.—*Company's net and Commission's revised investment in petroleum business, Associated Oil Co., 1914–June 30, 1919.*

Item.	1914	1915	1916
Company's investment:			
Capital stock	$30,735,462.00	$30,735,462.00	$30,735,762.00
Bonds	15,272,000.00	15,231,000.00	12,300,000.00
Surplus	6,272,344.70	8,000,420.17	8,037,427.00
Total	51,242,806.70	53,966,884.17	51,073,189.00
Deductions:			
Investments in controlled companies—net	6,939,804.61	6,616,981.53	6,406,895.12
Other stocks and bonds	162,966.00	161,613.00	286,913.00
Trustees' sinking fund	850,275.00	972,536.19	1,042,267.29
Total	7,964,271.61	7,751,130.72	7,733,705.41
Company's investment in oil business	43,279,535.40	46,215,753.45	43,339,483.47
Additions:			
Income tax			32,913.00
Depreciation and depletion adjustment	53,633.23	1 61,044.88	82,480.33
Total	53,633.23	1 61,044.88	115,393.33
Deductions:			
Appreciation	7,809,196.79	7,809,196.79	7,809,196.79
Deferred charges	1,992,442.19	1,871,205.77	1,285,481.28
Total	9,802,641.98	9,680,402.56	9,094,678.07
Net deductions	9,209,008.75	9,114,490.12	8,979,284.74
Commission's revised investment in oil business	43,070,526.65	42,101,263.33	42,360,198.59

Item.	1917	1918	1919 [2]
Company's investment:			
Capital stock	$30,735,641.00	$30,705,314.00	$30,735,146.00
Bonds	12,517,727.40	16,000,000.00	16,731,000.00
Surplus	7,141,575.80	6,220,118.57	11,201,410.51
Total	50,414,004.20	52,925,432.57	58,667,557.51
Deductions:			
Investments in controlled companies—net	7,405,079.94	8,047,540.23	8,795,410.45
Other stocks and bonds	260,106.81	2,201,466.67	2,466,084.51
Trustees' sinking fund	995,957.55	982,551.03	972.57
Total	8,661,735.40	11,151,570.03	11,462,467.53
Company's investment in oil business	41,652,268.80	41,773,862.54	47,205,089.98
Additions:			
Income tax	129,209.10	2,741,095.03	2,967,884.52
Depreciation and depletion adjustment	397,780.45	427,691.20	682,089.27
Incidental drilling		305,973.15	481,919.80
Total	526,989.55	3,474,759.38	4,131,893.59
Deductions:			
Marine equipment, depreciation, etc			275,000.00
Appreciation	7,809,196.79	7,809,196.79	7,809,196.79
Deferred charges	1,291,185.45	1,061,078.32	1,161,288.05
Total	9,100,382.24	8,870,275.11	9,245,484.84
Net deductions	8,573,392.69	5,395,515.73	5,113,591.25
Commission's revised investment in oil business	43,226,261.21	47,169,378.27	52,318,681.23

[1] Deduction.

[2] June 2.

TABLE 27.—*Company's income and Commission's revised income from petroleum business, Associated Oil Co., 1914–June 30, 1919.*

Item.	1914	1915	1916
Company's income	$1,254,816.68	$1,993,466.59	$3,033,616.88
Add back excess profits tax—deducted	11,072.74	16,402.26	39,281.94
Company's income from entire business	1,265,889.40	1,999,819.26	3,112,898.82
Add:			
Interest on bonds	764,402.13	728,497.46	630,702.13
Discount on bonds	90,518.26	68,944.81	77,738.64
Total	854,920.40	797,733.27	708,440.77
Deduct:			
Dividends received	526,491.22	490,515.15	416,973.28
Interest from affiliated companies	15,346.77	22,636.31	23,163.20
Interest from sinking fund			7,303.68
Total	616,647.02	833,436.46	447,004.16
Net additions	238,273.38	364,296.81	261,436.64
Company's income from oil business	1,503,862.78	2,274,215.09	3,364,267.46
Additions—depreciation and depletion	53,635.22	1 91,679.78	128,513.89
Commission's revised income from oil business	1,557,498.00	2,179,535.31	3,497,821.35

Item.	1917	1918	1919[2]
Company's income	$3,646,084.19	$4,605,965.02	$2,705,033.49
Add back excess profits tax—deducted	172,446.05	2,804,535.57	707,719.38
Company's income from entire business	4,021,492.24	7,410,231.06	3,365,722.87
Add:			
Interest on bonds	696,496.25	537,514.50	203,742.92
Discount on bonds	74,041.72	66,971.05	20,865.75
Total	660,447.97	604,485.69	224,608.67
Deduct:			
Dividends received	138,193.35	89,177.90	17,513.63
Interest from affiliated companies	20,237.27	22,510.94	2,749.75
Interest from sinking fund	10,195.51	7,988.84	726.09
Total	168,626.13	99,677.68	21,089.47
Net additions	473,811.84	513,820.94	267,903.00
Company's income from oil business	4,495,304.08	7,924,052.00	3,633,625.87
Additions:			
Depreciation and depletion	205,321.12	139,903.13	1 73,121.51
Incidental drilling		286,978.15	135,941.63
Total	205,321.12	426,873.28	62,820.14
Commission's revised income from oil business	4,700,576.20	8,349,921.28	3,696,326.01

1 Deduction.

2 First 6 months.

TABLE 28.—*Balance sheets, General Petroleum Corporation, as shown by company's records, 1916–June 30, 1919.*

Item.	1916	1917	1918	1919[1]
ASSETS.				
Fixed assets:				
Plant and properties	$18,290,209.56	$20,732,111.08	$22,266,283.20	$24,161,811.13
Less depreciation etc.	870,732.20	1,515,940.60	2,752,890.50	4,961,533.40
Net property	16,419,286.60	19,267,361.26	19,522,632.70	19,200,277.73
Current assets:				
Cash	134,455.92	400,715.71	339,640.70	443,995.08
Accounts receivable	1,650,440.23	1,478,304.72	2,318,223.22	4,125,260.51
Notes receivable	21,190.26	715.71	635,715.71	903,600.00
Inventory, oil	815,401.45	1,855,662.45	1,611,068.44	1,627,673.08
Inventory, other	324,836.96	1,274,178.11	940,447.27	1,476,617.31
Total current assets	2,446,310.91	4,609,966.96	5,824,295.04	7,785,931.71
Deferred charges	92,107.03	82,646.27	85,202.03	40,413.65
Other stocks and bonds	4,176,490.97	8,201,014.39	5,745,550.53	5,331,940.01
Total assets	22,134,204.47	30,260,488.03	31,172,032.34	33,178,564.10
LIABILITIES.				
Capital stock	16,702,400.00	16,702,400.00	16,702,400.00	20,429,800.00
Notes and bonds	908,600.00	3,530,000.00	1,800,000.00	1,762,464.04
Current liabilities:				
Accounts payable	676,344.46	900,012.00	1,204,796.75	1,142,349.79
Notes payable	225,577.50	716,400.00	302,813.50	45,000.00
Total	849,921.96	1,616,362.00	1,453,630.25	1,187,349.79
Accrued liabilities	290,282.22	1,019,267.47	922,624.89	830,885.41
Affiliated companies:				
Accounts and notes payable	626,240.62	1,012,706.50	382,886.41	
Surplus	2,607,540.20	2,897,756.62	4,272,744.74	1,993,278.25
Reserves	2,495,270.35	5,963,187.23	5,920,303.85	5,294,941.11
Total liabilities	22,134,204.47	30,260,488.03	31,172,032.34	33,178,564.10

[1] June 30.

TABLE 29.—*Fixed investment by departments, General Petroleum Corporation, 1916–June 30, 1919.*

Year.	Producing.	Refining.	Marketing.	Pipe lines.[1]
1916	$13,749,685.22	$458,861.16	$99,257.69	$8,635,894.99
1917	15,265,874.27	922,472.19	100,660.10	5,037,713.75
1918	17,238,986.60	1,271,288.15	737,886.47	7,985,193.49
1919[2]	20,231,110.67	1,220,072.11	873,034.89	7,102,241.66

Year.	Marine.	Other.	Total.
1916	$291,715.03	$230,466.39	$23,366,894.27
1917	322,640.65	69,534.54	27,620,894.50
1918	26,786.71	1,186,986.49	27,948,447.91
1919[2]	146,124.76	1,796,304.69	31,368,489.67

[1] Controlled by company. [2] June 30.

TABLE 30.—*Income account, General Petroleum Corporation, as shown by company's records, 1916–June 30, 1919.*

Item.	1916[1]	1917	1918	1919[2]
Gross sales	$3,607,747.00	$13,598,017.89	$23,274,170.45	$6,670,716.07
Less marketing expense	81,430.86	126,654.16	201,497.63	190,377.49
Net sales	3,526,316.14	13,471,363.73	23,072,672.82	6,480,338.58
Cost of sales:				
Cost of crude, etc.	1,667,422.75	6,098,251.20	14,309,866.61	5,734,989.97
Refinery operating	1,172,770.98	3,791,639.68	1,909,912.82	728,139.38
Transportation				
Cost of sales	2,840,193.68	9,889,887.38	16,151,281.43	6,470,129.13
Net profit on sales	686,112.46	4,443,376.09	6,921,391.49	2,467,013.49
Other income:				
Marine profit	222,080.31	613,254.45	2,259,668.92	312,265.78
Other profit	54,084.23	138,230.00	251,648.29	118,080.60
Gross income	962,246.20	5,117,623.53	9,332,408.70	2,897,359.87
Deductions:				
Taxes regular	42,800.00	110,638.63	65,033.02	47,344.11
Depreciation	214,072.04	446,694.03	630,948.00	439,905.13
Depletion	197,576.32	679,224.20	782,560.28	1,018,575.06
General expense	91,166.96	311,254.45	802,652.09	386,533.17
Uncollectible accounts	23.54	93.06	7,704.12	1,631.73
Interest on bonds	29,620.16	111,340.83	91,620.89	15,266.94
Interest on floating debt	10,476.39	57,295.73	44,366.43	49,489.11
Inventory adjustment		6,000.23	58,155.26	14,981.72
Drilling labor and incidentals		235,250.65	222,254.20	677,252.55
Amortization bonds		54,340.00	[3] 6,015.00	[4] 88,443.49
Amortization leases			60,915.31	[4] 20,305.03
Amortization patents			2,862.65	1,775.39
Abandoned leases				120,220.69
Income tax			[5] 2,782,386.96	[5] 1,079,385.00
Miscellaneous		19,220.64	[6] 48,924.55	[6] 72,009.00
Total deductions	586,235.24	2,151,491.65	5,416,616.90	1,192,669.66
Net income	357,986.96	2,965,631.89	3,915,792.20	1,644,395.23

[1] Last 6 months.
[2] First 6 months.
[3] Addition.
[4] Moving tanks.
[5] Adjustment of wages.

TABLE 31.—*Company's net and Commission's revised investment in petroleum business, General Petroleum Corporation, 1916–June 30, 1919.*

Item.	1916	1917	1918	1919[1]
Company's investment:				
Capital stock	$16,702,400.00	$16,702,400.00	$16,702,400.00	$20,439,600.00
Bonds and notes	903,000.00	2,540,000.00	947,000.00	810,000.00
Land-purchase obligations	177,000.00	860,000.00	826,000.00	772,694.04
Surplus	290,840.20	2,205,708.82	4,272,746.74	3,962,276.25
Reserves	3,000,000.00	3,000,000.00	3,000,000.00	3,000,000.00
Capital surplus	605,270.36	882,167.20	2,599,288.64	2,221,941.51
Total	21,678,512.56	26,111,277.05	28,411,435.38	30,097,731.80
Deductions:				
Investment in controlled companies (net)	3,508,394.74	3,899,221.89	3,577,291.24	3,795,361.19
Mortgage sinking fund (trustee)	5,000.00	212,626.69	290,215.33	86,119.76
Liberty bonds (net)		131,260.00	756,000.00	1,685,300.00
Total	3,513,394.74	4,233,105.80	4,643,506.56	5,566,780.95
Company's investment in oil business	17,970,116.20	21,878,271.15	23,765,928.82	24,530,950.85

[1] June 30.

TABLE 31.—*Company's net and Commission's revised investment in petroleum business, General Petroleum Corporation, 1916–June 30, 1919*—Continued.

Item.	1916	1917	1918	1919
Additions:				
Field research				$99,788.93
Scouting and leasing		$646.27	$1,365.62	1,181.07
Geological		304.68	4,550.89	4,135.58
Depreciation and depletion adjustment	$136,681.41	332,942.39	1,074,626.06	1,205,426.15
Incidental drilling		267,127.84	635,213.69	597,558.27
Depletion (surplus)				292,905.93
Total	136,681.41	597,972.68	1,706,755.86	2,199,942.94
Deductions:				
Depreciation	2,466,770.26	3,949,197.22	5,983,047.84	4,312,397.24
Deferred charges	93,107.00	95,996.57	98,222.02	60,515.65
Total	2,557,877.26	4,045,193.79	4,082,269.26	4,372,912.89
Net deductions	2,420,696.45	3,152,220.76	2,322,651.80	1,172,969.95
Revised investment in oil business	14,540,419.87	18,999,912.63	21,543,455.46	22,721,781.90

TABLE 32.—*Company's income and Commission's revised income from petroleum business, General Petroleum Corporation, 1916–June 30, 1919.*

Item.	1916 [1]	1917	1918	1919 [2]
Company's income	$287,696.96	$2,965,921.96	$3,995,702.20	$1,644,205.22
Add income tax (income)			2,730,269.99	[3] 1,475,268.09
Company's total income	287,696.96	2,965,921.96	6,725,172.19	[4] 21,272.78
Add:				
Interest paid on bonds	30,439.18	111,240.82	91,630.80	19,240.94
Amortization of bonds—discount		54,240.00	[5] 4,015.00	
Total	30,439.18	165,980.82	87,630.80	19,240.94
Deduct:				
Interest on General Pipe Line Co. bonds	14,220.17	60,427.94	55,448.75	21,215.34
Dividends received	26,890.00	64,015.00	32,602.50	17,020.00
Total	41,110.17	124,442.94	88,050.25	45,235.34
Net adjustment	1,671.01	43,237.88	1,425.06	26,005.60
Company's income from oil business	290,315.96	3,007,899.77	6,726,722.83	[6] 47,268.78
Additions:				
Impounded funds	187.10	41,696.26		
Nonoperating property expense		1,680.49	1,794.74	542.00
Miscellaneous		5,277.20	24,182.80	26,204.05
Field research				99,788.93
Scouting and leasing		646.27	547.61	2,760.00
Geological		304.68	4,180.02	
Selling expense (Mexico)			15,750.00	80,250.00
Depreciation and depletion adjustment	136,681.41	267,260.96	320,685.67	222,905.93
Abandoned property				126,220.00
Drilling, Incidental (California)		262,127.84	264,028.34	273,142.99
Drilling, Incidental (Wyoming)				226,085.28
Total	136,873.51	769,457.67	894,112.11	1,077,151.64
Revised income from oil business	536,194.46	3,777,316.84	7,618,896.94	1,619,320.38

[1] Last 6 months.
[2] First 6 months.
[3] Shown in company's records as credit.
[4] Loss.
[5] Deduction.

TABLE 33.—*Balance sheets, Shell Co. of California, as shown by company's records, 1915–June 30, 1919.*

Item.	1915	1916	1917	1918	1919[1]
ASSETS.					
Fixed assets:					
Plant account	$21,200,185.01	$24,775,965.15	$30,200,627.42	$23,010,214.34	$24,189,625.89
Other (patent rights)			1,000,000.00	1,000,000.00	1,000,000.00
Total	21,200,185.01	24,775,965.15	31,200,627.42	24,010,214.34	25,189,625.89
Less depreciation	492,398.61	3,727,304.03	8,260,765.92	12,896,780.54	15,158,037.25
Net fixed assets	20,707,786.40	21,051,661.12	22,039,861.50	21,114,033.80	20,031,588.64
Current assets:					
Cash	516,423.46	1,395,000.55	570,090.44	740,034.23	600,021.93
Accounts receivable	340,008.11	705,891.42	1,620,243.26	3,116,453.56	1,372,993.99
Notes receivable				200,000.00	
Inventory, oil	1,615,599.77	975,185.06	988,275.70	1,362,570.15	2,696,621.94
Inventory, material, etc.	282,054.67	883,573.26	1,262,513.64	2,219,203.22	1,977,099.33
Total	2,853,084.02	3,845,300.84	4,338,562.16	6,639,760.40	7,052,996.19
Deferred charges	127,640.16	107,260.26	85,161.31	105,760.75	99,265.99
Affiliated companies:					
Accounts receivable	331,189.79	2,229,504.85	4,268,438.10	10,947,774.68	[1] 11,785,680.77
Stocks and bonds	5,675,275.00	7,267,900.00	4,406,900.00	3,356,900.00	2,986,900.00
Other stocks and bonds	101,543.30		224,260.05	1,262,631.00	1,260,231.00
Other assets	[2] 3,279,892.00	[2] 3,344,441.00			
Total assets	31,676,626.66	38,094,661.27	80,960,164.22	42,399,722.83	43,485,603.19
LIABILITIES.					
Capital stock	25,000,000.00	33,535,575.00	33,535,575.00	33,535,575.00	33,535,575.00
Current liabilities:					
Accounts payable	274,121.62	387,543.30	965,276.98	857,337.70	972,603.19
Notes payable	14,000.00				
Accrued liabilities		80,774.75	279,334.13	142,466.00	
Total	288,121.62	464,318.07	1,144,611.11	1,009,803.70	972,603.19
Intercompany accounts payable	439,218.66	3,035,152.42	1,851,280.34	4,379,181.63	5,046,603.66
Subscription capital stock	5,997,000.00				
Discount stock subsidiary companies	129,700.00	446,625.00			
Reserves	41,127.19	31,705.99	181,205.05	3,484,199.51	3,697,668.11
Surplus	27,614.27	841,283.79	747,382.72	3,491,037.99	3,232,152.53
Total liabilities	31,676,626.66	38,094,661.27	36,960,164.22	42,399,722.83	43,485,603.19

[1] June 30.

[2] Discount on capital stock issued.

TABLE 34.—*Fixed investment by departments, Shell Co. of California, 1915–June 30, 1919.*

Date.	Refining.	Marketing.	Producing.	Pipe lines.[1]
1915	$2,189,182.75	$1,222,296.66	$17,790,694.47	$998,010.07
1916	2,190,262.49	1,331,414.20	19,256,439.94	998,048.51
1917	3,573,626.49	1,888,245.29	23,174,260.10	998,095.54
1918	2,645,558.51	1,888,245.27	20,082,760.84	3,033,285.72
1919[2]	4,367,457.90	2,033,698.92	20,082,267.23	3,705,462.75

Date.	Marine.	Other.	Total.
1915	$22,000.00		$21,200,185.01
1916	57,772.97		24,775,965.15
1917	1,000,726.98	$1,000,000.00	31,200,627.42
1918	130,367.23	1,000,000.00	24,010,214.34
1919[2]	130,366.90	1,000,000.00	25,189,625.89

[1] Including tank farms.

[2] June 30.

TABLE 35.—*Income account, Shell Co. of California, as shown by company's records, 1915–June 30, 1919.*

Item.	1915	1916	1917	1918	1919[1]
Gross sales of oil	51,720,280.82	57,160,907.20	89,522,062.90	214,807,174.66	96,888,208.66
Less—					
Packages					86,314.67
Transportation	346,677.69	260,616.61	459,961.51	626,388.67	345,497.26
Discounts, etc.					15,696.42
Marketing expense	726,340.73	1,070,799.43	1,279,088.89	1,317,399.12	899,220.90
Total deductions	854,436.06	1,387,416.34	1,739,048.27	2,344,178.29	1,447,229.65
Net sales at refinery	888,951.88	5,813,490.86	8,082,416.09	12,222,994.83	5,177,608.69
Cost of sales:					
Cost of crude and equivalent		2,282,163.09	6,880,882.26	9,207,823.27	3,748,853.90
Refinery operating		887,944.09	1,340,570.89	1,469,817.24	887,288.12
Purchased products	1,468,225.64	226,081.67	4,719.21	32,215.15	220,201.94
Inventory (increase or decrease)	[2] 856,653.19	685,579.83	[2] 256,134.60	26,415.60	[2] 637,680.32
Total cost of sales	1,109,772.45	5,281,051.06	7,679,013.57	10,911,760.20	4,206,264.45
Profit on oil sold	[2] 214,820.57	532,439.78	413,402.53	1,311,234.63	911,371.24
Other income:					
Oil-producing property	41,765.95	5,677.43	19,870.22		
Pipe lines	44,404.69			1,026,000.58	
Marine	155,700.00	1,497.57	429,634.67		11,260.62
Tank cars	1,646.70	2,077.04	5,147.69		
Other operating	19,094.05		267,561.57		
Dividends					7,672.50
Rents					457,219.21
Miscellaneous	5,043.61	88,305.17		980,222.63	
Gross income	83,026.43	631,157.34	1,214,897.14	3,289,437.77	1,387,493.38
Deductions:					
Income tax			126,020.87		
Other	82,000.17	117,547.55	304,874.25	903,706.73	30,902.96
Total deductions	82,000.17	117,547.55	431,924.92	903,706.73	30,902.96
Net income	31,026.26	513,609.49	782,912.20	2,985,690.06	1,347,090.42

[1] First 6 months. [2] Decrease. [3] Loss.

TABLE 36.—*Company's net and Commission's revised investment in petroleum business, Shell Co. of California, 1915–June 30, 1919.*

Item.	1915	1916	1917	1918	1919[1]
Company's investment:					
Capital stock	25,000,000.00	25,000,000.00	25,000,000.00	25,000,000.00	25,000,000.00
Surplus	[3] 3,289,129.73	[3] 3,702,738.24	747,988.73	3,484,139.51	3,082,048.11
Company's active business	21,710,769.27	21,297,261.76	24,252,987.72	27,515,714.51	28,082,090.11
Deduct:					
Net stocks and bonds of affiliated companies	4,807,145.31	4,779,475.41	5,208,900.00	5,208,900.00	5,208,900.00
Government and other investment	101,448.00		143,948.00	1,284,488.00	1,288,188.00
Net accounts receivable affiliated companies	[3] 113,139.51	[3] 895,618.00	5,277,148.98	4,000,000.00	4,719,000.70
Total deductions	5,095,087.80	5,082,093.41	5,629,092.98	10,193,943.20	10,216,088.70
Company investment in oil business	26,805,781.07	26,743,355.35	29,283,972.70	29,309,771.31	29,300,709.22

[1] June 30. [2] Deficit. [3] Addition.

TABLE 36.—*Company's net and Commission's revised investment in petroleum business, Shell Co. of California, 1915–June 30, 1919*—Continued.

Item.	1915	1916	1917	1918	1919
Deduct:					
Deferred charges	$127,640.16	$107,268.29	$95,180.21	$106,760.75	$89,288.99
Depreciation and depletion adjustment	741,322.36				
Patent right			500,000.00	800,000.00	700,000.00
Marine investment [1]			1,087,982.19		
Other investment				300,000.00	300,000.00
Total deductions	868,962.52	107,268.29	2,013,162.40	1,107,760.75	1,089,288.99
Add:					
Depreciation and depletion adjustment		74,522.73	2,026,516.44	4,026,445.05	5,026,105.09
Geological expense	15,145.81	34,711.81	63,080.00	106,102.22	120,277.22
Investigational expense			45,801.54	39,902.80	39,902.80
Total additions	15,145.81	109,545.89	2,051,397.97	3,132,450.77	5,147,387.01
Net addition	[2] 693,787.71	2,160.33	1,038,145.17	4,025,960.02	5,049,708.02
Revised investment	22,309,994.29	24,730,668.29	27,294,119.46	30,825,961.27	31,340,416.60

[1] Excluded from investment in the petroleum business, as this item appears only 1 year.
[2] Deduction.

TABLE 37.—*Company's income and Commission's revised income from petroleum business, Shell Co. of California, 1915–June 30, 1919.*

Item.	1915	1916	1917	1918	1919 [1]
Company's income	$21,009.29	$513,039.49	$792,912.23	$2,965,998.05	$1,947,998.49
Add income tax			135,080.07		
Company's income, entire business	21,009.29	513,039.49	917,992.30	2,965,998.05	1,947,998.49
Deduct:					
Interest affiliated companies	3,214.66	37,309.23	282,882.69	847,763.13	
Marine income [2]			406,654.67		
Dividends		15,345.00	15,345.00	15,345.00	7,672.50
Simplex royalty			38,264.61	8,713.69	
Total	3,214.66	52,654.23	744,147.97	871,822.82	7,672.50
Company's income, oil business	17,791.58	460,384.06	173,814.03	2,413,982.24	1,940,327.99
Add:					
Depreciation and depletion adjustment	[3] 741,322.36	815,127.14	3,982,982.66	3,982,998.41	998,921.84
Geological	15,145.81	18,908.00	28,177.58	91,213.22	25,174.99
Investigational			45,801.54	11,011.26	
Abandoned property			196,781.00	1,494,642.77	
Patent depreciation			100,000.00	100,000.00	80,000.00
Total additions	[3] 726,147.55	834,035.14	4,257,938.97	3,978,955.27	1,003,996.24
Less Valley Pipe Line charge				800,515.83	
Net additions	[3] 726,147.55	834,035.14	3,257,980.97	3,273,139.65	1,003,996.24
Revised income, oil business	[3] 708,355.97	1,294,077.20	3,431,813.00	4,687,121.89	2,943,794.17

[1] First 6 months.
[2] Excluded from petroleum business as this item appears only 1 year.
[3] Deduction.
[4] Loss.

TABLE 38.—*Principal items of cost of producing crude petroleum, as revised by the Commission, by groups of producers, 1914–June 30, 1919.*

Year.	Group.	Range of production (barrels).	Number of companies.	Quantity (barrels).	Cost of production.					
					Lifting.	General and administrative.	Depreciation.	Depletion.	Credits.[1]	Total.
1914	1	Over 1,000,000	10	45,942,548	$22,290,812.58	$2,139,840.40	$3,073,208.68	$3,168,447.36	$219,529.27	$30,414,889.49
	2	200,000 to 1,000,000	18	9,207,903	945,154.17	206,648.41	732,357.41	447,605.44	85,477.08	2,496,288.34
	3	40,000 to 200,000	28	3,902,998	461,267.82	171,772.66	467,464.08	435,855.30	1,630.08	1,535,229.79
	4	Under 40,000	30	867,630	208,520.10	51,905.67	148,670.20	167,085.10	.....	576,277.90
		Total	86	59,920,927	4,071,980.17	2,569,268.80	4,374,900.32	4,369,744.13	291,907.39	15,114,110.69
1915	1	Over 1,000,000	7	39,449,324	2,998,286.27	2,016,594.04	3,161,978.13	3,055,252.20	302,092.78	10,970,018.86
	2	200,000 to 1,000,000	20	10,572,009	831,775.90	236,065.06	853,751.05	535,085.72	32,253.68	2,484,423.45
	3	40,000 to 200,000	51	3,928,361	452,102.97	165,285.51	463,714.45	340,813.39	1,444.24	1,419,547.08
	4	Under 40,000	49	1,305,996	118,009.06	129,535.79	306,651.58	304,100.97	33.91	1,122,397.49
		Total	107	55,305,341	3,898,202.79	2,547,101.39	4,747,698.02	4,305,251.28	335,824.49	15,972,387.61
1916	1	Over 1,000,000	9	49,251,282	3,244,902.98	2,934,760.89	3,810,714.16	3,926,534.90	466,139.11	13,850,823.81
	2	200,000 to 1,000,000	19	8,979,891	1,084,731.89	257,698.52	797,698.52	537,221.79	21,321.79	2,757,429.91
	3	40,000 to 200,000	43	4,883,122	502,694.99	173,430.03	487,691.39	435,855.30	5,356.08	2,082,315.63
	4	Under 40,000	45	1,315,099	224,220.43	87,322.20	271,055.39	277,695.91	30.92	1,071,371.20
		Total	116	64,009,392	5,816,221.82	3,453,201.43	5,447,477.46	5,273,112.67	492,513.29	19,689,551.54
1917	1	Over 1,000,000	10	59,522,620	5,321,959.25	3,912,711.09	5,255,783.64	4,338,000.63	734,732.69	18,104,720.92
	2	200,000 to 1,000,000	19	9,255,178	1,385,947.78	459,186.47	895,917.57	616,144.14	24,903.30	3,332,292.76
	3	40,000 to 200,000	49	5,201,243	1,315,441.41	366,108.66	776,258.66	575,000.00	5,933.44	3,026,875.29
	4	Under 40,000	53	1,226,191	422,547.70	134,275.49	298,498.33	370,095.20	982.94	1,227,433.78
		Total	131	74,905,182	8,439,899.14	4,813,282.33	7,265,264.80	5,899,439.97	767,192.63	25,691,322.97
1918	1	Over 1,000,000	10	69,232,803	6,053,338.65	5,260,915.29	6,142,158.69	4,514,328.97	699,260.07	21,271,481.53
	2	200,000 to 1,000,000	22	10,541,776	1,301,966.47	462,011.37	1,105,607.81	645,986.19	29,599.61	4,485,972.24
	3	40,000 to 200,000	47	5,025,917	1,020,260.06	313,392.02	796,772.05	616,945.03	7,726.37	3,040,271.26
	4	Under 40,000	55	1,305,696	403,260.61	154,892.78	227,335.73	306,612.16	2,858.73	1,089,342.55
		Total	134	86,106,192	10,780,825.79	6,191,211.46	8,272,274.28	6,083,872.35	739,444.78	30,488,067.58
1919[2]	1	Over 1,000,000	11	33,363,824	4,273,786.19	3,232,454.64	3,300,015.78	2,332,906.59	307,397.93	13,045,765.26
	2	200,000 to 1,000,000	23	4,911,864	1,023,190.28	235,991.26	364,020.10	209,140.57	14,097.66	2,228,045.79
	3	40,000 to 200,000	29	2,254,630	726,027.27	201,583.36	315,797.18	205,906.91	3,135.93	1,454,468.79
	4	Under 40,000	47	606,709	249,321.75	77,479.27	146,796.96	174,756.94	277.25	696,956.71
		Total	119	41,118,026	6,420,415.13	3,869,483.49	4,284,269.06	2,922,702.71	324,908.77	17,345,397.55

[1] Deduction.

[2] First 6 months.

TABLE 39.—*Lifting cost and total cost, per barrel of 42 gallons, of producing crude petroleum in California, by companies, 1914.*

Company.	Lifting cost.	Total cost.	Per cent of production covered.	Company.	Lifting cost.	Total cost.	Per cent of production covered.	Company.	Lifting cost.	Total cost.	Per cent of production covered.
1	$0.013	$0.021	.....	33	$0.125	$0.351	.....	65	$0.208	$0.362	.....
2	.019	.033	.....	34	.126	.334	.....	66	.227	.368	.....
3	.033	.124	.....	35	.075	.188	.....	67	.180	.577	.....
4	.033	.123	.....	36	.170	.262	.....	68	.219	.390	.....
5	.038	.165	36.6	37	.215	.333	.....	69	.210	.433	.....
6	.103	.169	.....	38	.060	.172	60.1	70	.225	.654	.....
7	.036	.170	.....	39	.203	.574	.....	71	.217	.691	97.0
8	.103	.172	.....	40	.218	.276	.....	72	.243	.700	.....
9	.035	.178	.....	41	.117	.188	.....	73	.105	.701	.....
10	.032	.160	.....	42	.075	.188	.....	74	.128	.706	.....
11	.027	.191	.....	43	.128	.491	.....	75	.234	.710	.....
12	.032	.146	69.3	44	.179	.282	.....	76	.262	.746	.....
13	.033	.165	.....	45	.157	.239	.....	77	.263	.777	.....
14	.075	.245	.....	46	.154	.255	.....	78	.257	.781	.....
15	.042	.138	.....	47	.159	.251	.....	79	.257	.790	.....
16	.070	.240	.....	48	.153	.251	.....	80	.257	.790	.....
17	.107	.214	.....	49	.057	.163	57.3	81	.448	.805	.....
18	.101	.214	.....	50	.057	.445	.....	82	.244	.811	.....
19	.134	.215	.....	51	.062	.158	.....	83	.[illegible]	.376	66.0
20	.108	.165	.....	52	.168	.257	96.4	84	.[illegible]	.868	.....
21	.112	.164	.....	53	.202	.288	.....	85	.[illegible]	.[illegible]	.....
22	.057	.173	.....	54	.[illegible]	.[illegible]	.....	86	.[illegible]	.[illegible]	.....
23	.127	.217	.....	55	.[illegible]	.[illegible]	.....	87	.144	.[illegible]	.....
24	.158	.168	84.9	56	.[illegible]	.[illegible]	.....	88	.[illegible]	.[illegible]	.....
25	.058	.163	.....	57	.076	.510	.....	89	.168	.[illegible]	.....
26	.063	.164	.....	58	.[illegible]	.[illegible]	.....	90	.[illegible]	1.[illegible]	.....
27	.045	.161	.....	59	.[illegible]	.[illegible]	.....	91	.[illegible]	1.[illegible]	.....
28	.175	.216	.....	60	.[illegible]	.[illegible]	.....	92	.[illegible]	1.745	.....
29	.158	.161	66.8	61	.[illegible]	.[illegible]	.....	93	.[illegible]	1.755	.....
30	.159	.161	.....	62	.[illegible]	.[illegible]	.....	94	.[illegible]	1.788	.....
31	.145	.212	.....	63	.[illegible]	.[illegible]	.....	95	.[illegible]	1.851	.....
32	.188	.210	.....	64	.[illegible]	.[illegible]	.....	96	.[illegible]	1.861	100.0

TABLE 40.—*Cost of producing crude petroleum in California, by fields, 1914–June 30, 1919.*

Year.	Field.	Quantity.	Quantity per company.	Annual production per well.	Production cost per barrel.							
					Lifting expense.	General and administrative.	Depreciation.	Depletion.	Credits.	Total.	Royalty.	Grand total.
		Barrels.	*Barrels.*	*Barrels.*								
1914	Coalinga	3,372,408	157,560	15,470	$0.173	$0.022	$0.114	$0.026	$0.022	$0.414	$0.076	$0.490
	Kern River	1,172,973	97,748	2,547	.170	.02	.117	.022	.002	.447	.076	.523
	Los Angeles and Salt Lake	1,000,821	371,705	2,245	.104	.026	.119	.018	.....	.264	.062	.326
	Midway-Sunset	12,418,216	413,941	24,889	.060	.021	.093	.123	.....	.273	.060	.333
	McKittrick	653,342	144,598	15,210	.178	.018	.086	.080	.....	.362	.....	.362
	Santa Maria	812,665	204,911	12,696	.110	.022	.177	.082	.001	.392	.067	.459
	Ventura-Newhall	268,213	137,771	4,914	.066	.021	.126	.143	.....	.356	.061	.417
	Whittier-Fullerton	1,805,868	262,864	8,888	.082	.027	.080	.088	.022	.279	.060	.339
	Miscellaneous[1]	26,372,387	2,721,711	26,100	.052	.002	.071	.041	.008	.216	.035	.251
	Total	50,330,977	633,135	21,271	.066	.043	.077	.072	.004	.262	.051	.313
1915	Coalinga	3,709,201	143,966	13,015	.157	.022	.143	.119	.....	.441	.087	.528
	Kern River	1,092,761	77,163	2,937	.154	.045	.136	.066	.001	.399	.075	.474
	Los Angeles and Salt Lake	881,241	228,228	2,263	.125	.024	.144	.056	.....	.349	.073	.422
	Midway-Sunset	6,219,882	326,994	21,899	.068	.021	.094	.157	.....	.340	.068	.408
	McKittrick	800,722	145,176	13,013	.152	.020	.077	.107	.....	.356	.....	.356
	Santa Maria	815,444	206,611	14,719	.102	.021	.140	.092	.....	.355	.062	.417
	Ventura-Newhall	535,626	107,126	5,360	.122	.020	.135	.123	.....	.401	.064	.465
	Whittier-Fullerton	1,800,958	300,161	8,313	.088	.023	.091	.070	.012	.280	.060	.340
	Miscellaneous[1]	25,495,165	2,206,539	26,256	.054	.002	.079	.03	.007	.205	.031	.236
	Total	45,350,941	516,227	14,794	.070	.018	.086	.072	.005	.278	.054	.332
1916	Coalinga	7,635,951	328,624	15,197	.120	.022	.079	.156	.....	.407	.080	.510
	Kern River	1,662,260	75,571	3,230	.205	.048	.125	.060	.001	.478	.062	.540
	Los Angeles and Salt Lake	745,888	148,417	5,143	.138	.045	.091	.060	.....	.415	.083	.498
	Midway-Sunset	7,995,357	307,706	15,884	.128	.022	.085	.159	.....	.394	.080	.474
	McKittrick	723,157	157,021	15,050	.098	.020	.080	.078	.....	.276	.....	.276
	Santa Maria	944,020	188,813	13,971	.183	.048	.172	.167	.001	.569	.047	.616
	Ventura-Newhall	322,396	97,049	5,363	.168	.032	.144	.137	.....	.481	.084	.565
	Whittier-Fullerton	1,617,444	309,625	7,887	.111	.030	.110	.072	.010	.333	.041	.374
	Miscellaneous[1]	42,084,356	2,151,312	25,771	.066	.028	.079	.046	.010	.301	.034	.335
	Total	64,006,389	451,779	15,795	.085	.026	.083	.084	.007	.306	.027	.333

[1] Includes results for companies operating in two or more fields.

TABLE 40.—*Cost of producing crude petroleum in California, by fields, 1914–June 30, 1919*—Continued.

Year.	Field.	Quantity.	Quantity per company.	Annual production per well.	Production cost per barrel.							
					Lifting expense.	General and administrative.	Depreciation.	Depletion.	Credits.	Total.	Royalty.	Grand total.
		Barrels.	*Barrels.*	*Barrels.*								
1917	Coalinga	8,953,891	372,079	18,230	$0.123	$0.046	$0.108	$0.117		$0.397	$0.013	$0.406
	Kern River	998,490	71,321	2,040	.270	.075	.163	.169	$0.001	.666	.022	.688
	Los Angeles and Salt Lake	440,345	160,086	4,657	.208	.062	.100	.060		.427	.020	.447
	Midway-Sunset	8,481,513	243,918	16,758	.161	.075	.135	.060		.431	.006	.437
	McKittrick	917,712	114,714	16,101	.127	.022	.065	.072		.286		.286
	Santa Maria	1,164,405	165,244	14,228	.200	.053	.165	.168	.001	.585	.088	.673
	Ventura-Newhall	660,305	72,778	8,569	.186	.107	.211	.125	.001	.628	.073	.701
	Whittier-Fullerton	1,445,358	220,952	6,961	.123	.038	.110	.061	.002	.381	.034	.415
	Nonseparable[1]	51,313,063	2,139,044	21,062	.094	.026	.060	.051	.014	.267	.060	.327
	Total	74,905,183	571,032	17,359	.113	.034	.067	.060	.010	.248	.030	.278
1918	Coalinga	9,520,311	396,192	17,184	.145	.056	.115	.109		.332	.013	.345
	Kern River	962,909	70,212	2,269	.281	.077	.147	.089	.001	.707	.030	.737
	Los Angeles and Salt Lake	483,251	140,813	4,251	.253	.067	.103	.060		.483	.020	.503
	Midway-Sunset	9,307,063	243,871	16,351	.209	.066	.107	.135	.001	.577	.078	.655
	McKittrick	906,967	128,848	11,967	.197	.033	.078	.072		.380		.380
	Santa Maria	1,425,739	217,901	17,240	.223	.078	.169	.157	.005	.624	.081	.705
	Ventura-Newhall	617,280	149,991	8,156	.180	.105	.189	.161	.006	.640	.062	.702
	Whittier-Fullerton	2,230,666	285,207	9,966	.151	.056	.105	.061	.001	.372	.050	.422
	Nonseparable[1]	54,674,893	2,782,744	15,040	.108	.027	.067	.069	.017	.288	.040	.328
	Total	80,665,113	602,126	14,221	.134	.032	.104	.078	.012	.361	.041	.402
1919[2]	Coalinga	4,717,055	214,413		.157	.057	.130	.109		.453	.014	.467
	Kern River	449,978	44,998		.345	.067	.131	.081	.001	.623	.033	.656
	Los Angeles and Salt Lake	285,794	67,198		.209	.077	.213	.089		.587	.127	.714
	Midway-Sunset	4,012,883	118,025		.228	.105	.137	.202		.673	.051	.724
	McKittrick	401,502	66,917		.186	.042	.086	.060	.004	.370		.370
	Santa Maria	573,676	71,709		.264	.060	.139	.200	.002	.615	.067	.682
	Ventura-Newhall	257,548	42,941		.192	.088	.176	.053	.010	.599	.067	.666
	Whittier-Fullerton	1,318,258	146,473		.159	.056	.092	.084		.390	.030	.419
	Nonseparable[1]	29,018,167	1,450,908		.126	.103	.069	.050	.018	.366	.043	.411
	Total	41,118,908	243,860		.156	.096	.107	.074	.013	.419	.044	.463

[1] Includes results for companies operating in two or more fields.

[2] First 6 months.

TABLE 41.—*Prices of principal materials and supplies used in drilling operations in California, July 1, 1914, to Jan. 1, 1920.*

Article.	Delivered prices.						Percentage of increase over July 1, 1914.				
	July 1, 1914.	July 1, 1916.	July 1, 1917.	July 1, 1918.	July 1, 1919.	Jan. 1, 1920.	July 1, 1916.	July 1, 1917.	July 1, 1918.	July 1, 1919.	Jan. 1, 1920.
Bit steel per pound	$0.036	$0.046	$0.07	$0.07	$0.07	$0.10	28.20	94.44	94.44	94.44	177.80
Boilers:											
54 by 20, each	36.91	38.72	52.17	57.26	59.27	59.73	22.79	93.27	113.88	120.33	119.81
60 by 19, each	45.50	47.22	66.98	78.49	93.69	94.94	26.76	46.99	72.31	105.71	108.68
66 by 20, each	44.48	53.03	76.05	84.96	94.34	98.22	20.57	70.99	90.65	112.10	120.99
72 by 20, each	66.72	105.94	116.88	126.46	140.63	141.07	58.78	75.10	104.88	132.77	111.44
Casing:											
8¼ inch—17 pounds, per foot	.527	.727	1.06	1.26	1.13	1.13	30.32	38.31	124.49	102.67	103.97
10-inch—17 pounds, per foot	.804	.732	1.06	1.26	1.14	1.14	26.60	76.46	112.13	91.98	91.98
10-inch—20 pounds, per foot	.805	.983	1.272	1.48	1.366	1.366	27.94	52.39	113.47	94.13	94.53
10-inch—175 pounds, per foot	.805	.89	1.217	1.42	1.30	1.30	24.06	75.11	104.23	87.05	87.05
12-inch—39 pounds, per foot	.898	1.315	1.948	2.14	1.956	1.948	23.10	86.54	116.93	97.57	96.99
12-inch—45 pounds, per foot	1.309	1.577	2.21	2.69	2.37	2.37	31.09	68.71	116.13	97.05	97.01
13-inch—50 pounds, per foot	1.97	2.453	3.453	4.013	3.70	3.68	24.52	75.28	103.71	87.82	86.79
15-inch—60 pounds, per foot	2.37	2.94	3.67	4.31	4.17	4.17	18.79	42.80	73.49	68.28	68.28
16-inch—70 pounds, per foot	3.464	4.156	4.015	4.29	5.795	5.795	20.12	72.65	79.65	98.23	98.23
Drive pipe, 9-inch—53 pounds, per foot	1.153	1.46	2.16	2.44	2.267	2.267	26.62	88.47	117.99	98.23	96.53
Rods:											
⅞-inch—4 pounds, per foot	.149	.19	.288	.3217	.3249	.3249	31.65	93.29	114.97	94.09	94.09
1-inch—3¾ pounds, per foot	.1398	.1808	.2692	.30	.30	.30	31.09	95.07	117.48	98.00	98.00
1-inch—4 pounds, per foot	.1865	.2409	.3587	.40	.40	.3788	29.16	92.29	114.62	94.63	94.63
1¼-inch—5 pounds, per foot	.17	.176	.2875	.27	.248	.248	43.23	69.26	125.00	104.17	104.17
Manila rope, 3-inch, oil line, per foot	14.26	16.93	19.23	20.29	18.24	20.44	7.92	77.40	46.35	28.00	43.44
Manila rope, 4-inch, per 100 feet	42.30	47.75	68.60	78.78	78.78	73.60	28.83	61.89	90.69	84.89	84.89
Rope sockets, 2¾-inch, each											
Rig irons, 3-inch, D. T. (not including rig or sill irons)	804.23	926.45	939.77	1,079.80	1,079.80	1,150.71	15.09	84.52	114.05	114.05	143.13
Drilling sand pipe, 2½ by ¼ inch	6.95	10.80	16.16	16.60	16.60	16.20	55.25	132.66	138.84	138.84	133.09
Wire cables:											
1 foot, 6 strands, 19 wire	.0826	.126	.181	.1858	.1728	.168	54.16	119.39	132.18	109.19	103.39
1 inch	.1068	.1721	.241	.239	.223	.2268	61.42	125.75	130.39	104.21	98.13
Manila cable, per pound	.1538	.2225	.3451	.3556	.3556	.3551	44.70	124.46	132.25	98.31	76.49
Pumps:											
3 by 3 by 5, Duplex	39.20	48.27	67.95	70.20	62.65	64.921	23.12	67.47	81.89	59.84	65.66
8 by 4 by 6, Duplex	64.12	112.61	144.23	170.64	158.11	161.89	75.71	95.29	91.25	66.09	71.89
Pump jacks, 3-inch beam, each	24.20	36.00	34.27	33.27	27.18	22.99	14.04	36.31	79.89	97.19	94.93
Rig timber, per 1,000 feet	20.19	20.00	34.88	41.50	32.60	27.75	10.73	27.99	55.46	103.58	130.89
Steel tanks, 10,500 barrels, each	16,667.00	21,653.00	26,667.00	27,667.00	24,283.00	26,743.00	30.02	100.00	127.20	100.20	130.48

TABLE 41.—*Prices of principal materials and supplies used in drilling operations in California, July 1, 1914, to Jan. 1, 1920*—Continued.

Article.	Delivered price.						Percentage of increase over July 1, 1914.				
	July 1, 1914.	July 1, 1916.	July 1, 1917.	July 1, 1918.	July 1, 1919.	Jan. 1, 1920.	July 1, 1916.	July 1, 1917.	July 1, 1918.	July 1, 1919.	Jan. 1, 1920.
Gas engines:											
25-horsepower, each	$750.00	$826.33	$903.00	$993.00	$1,432.33	$1,344.67	10.18	20.27	31.78	97.78	79.29
40-horsepower, each	.....	993.00	1,792.75	2,195.00	2,023.33	1,995.46	.....	80.10	120.93	104.03	117.58
Steam engines:											
25-horsepower, 11 by 12	225.13	250.27	454.72	541.70	670.55	601.20	10.16	98.90	99.61	109.01	113.09
40-horsepower, 12 by 12	340.64	382.16	695.05	822.60	998.05	748.51	2.09	86.96	66.49	93.36	107.65
Boilers:											
60-horsepower	650.00	665.00	1,075.00	1,270.00	1,270.00	1,903.00	.74	67.05	126.71	126.71	179.41
80-horsepower	1,000.00	1,025.00	1,655.00	1,970.00	1,970.00	1,970.00	4.99	98.50	97.05	97.05	97.05
90-horsepower	725.00	750.00	1,200.00	1,275.00	1,275.00	1,975.00	3.48	72.41	175.41	175.41	175.41
Band wheel, Fowler Manual, No. 8	500.00	563.40	940.00	880.46	896.74	1,084.78	12.70	88.20	76.10	87.35	116.96

TABLE 42.—*Production, investment, earnings, and rate of earnings in the producing business, by profit groups, 1914–June 30, 1919.*

Profit group.	Companies.		Net production.		Net investment.		Earnings.		Annual rate of earnings (per cent).
	Number.	Per cent.	Barrels.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	
1914									
Losing money	47	48.0	10,027,366	17.6	$24,316,105	42.0	[1] $1,125,289	[1] 4.9	[1] 1.6
Earning less than 10 per cent	26	26.5	15,305,332	27.1	17,472,113	31.7	2,185,864	15.9	4.4
Earning 10 to 20 per cent	9	9.4	2,175,274	3.6	6,285,819	4.2	881,401	7.7	14.0
Earning 20 to 30 per cent	6	6.2	20,624,101	43.6	30,436,157	20.2	8,105,221	71.0	26.7
Earning 30 to 40 per cent	2	2.1	370,461	.7	211,845	.1	84,660	.4	39.9
Earning 40 to 50 per cent	2	2.1	1,000,535	1.8	714,314	.5	332,309	2.9	46.5
Earning 50 per cent and over	3	3.1	2,469,403	4.4	482,531	.3	909,450	8.0	188.4
Total	95	100.0	56,972,472	100.0	140,671,084	100.0	11,411,735	100.0	7.6
1915									
Losing money	62	58.1	11,270,309	21.7	68,774,271	44.0	[1] 653,268	[1] 28.4	[1] 1.0
Earning less than 10 per cent	30	28.1	14,572,554	28.1	42,845,786	28.2	1,861,539	27.6	4.3
Earning 10 to 20 per cent	9	8.4	12,622,727	24.3	23,180,220	14.2	3,260,657	48.0	14.1
Earning 20 to 30 per cent	4	3.7	10,270,988	20.0	11,880,441	7.4	2,683,267	39.8	22.6
Earning 30 to 40 per cent	1	1.0	1,305,454	2.3	717,415	.5	520,872	7.7	72.6
Earning 40 to 50 per cent	1	.9	307,647	1.1	314,445	.2	159,208	2.0	50.6
Earning 50 per cent and over	1	.9	681,626	.7	136,260	.1	117,136	1.7	84.1
Total	107	100.0	51,031,300	100.0	151,052,160	100.0	6,760,956	100.0	6.4
1916									
Losing money	38	31.6	5,195,638	3.6	30,313,004	22.7	[1] 1,330,681	[1] 8.7	[1] 1.1
Earning less than 10 per cent	36	30.0	17,951,704	20.0	40,193,401	30.4	2,987,208	19.5	2.5
Earning 10 to 20 per cent	11	9.2	14,772,436	16.3	23,025,270	17.3	4,025,724	26.2	17.9
Earning 20 to 30 per cent	7	6.0	14,098,577	32.4	26,773,430	13.7	5,427,687	35.3	27.1
Earning 30 to 40 per cent	2	1.7	543,326	.4	483,197	.3	146,716	.7	31.8
Earning 40 to 50 per cent	3	2.6	1,145,796	1.2	917,961	.5	415,617	1.2	46.6
Earning 50 per cent and over	5	4.3	6,662,990	16.5	10,725,888	6.2	7,327,241	36.5	67.7
Total	116	100.0	60,122,481	100.0	173,988,151	100.0	21,660,430	100.0	12.4
1917									
Losing money	42	33.1	5,455,515	7.8	27,139,498	18.0	[1] 1,171,756	[1] 5.9	[1] 4.3
Earning less than 10 per cent	37	29.9	2,824,183	3.6	24,668,631	12.0	1,145,680	2.9	4.6
Earning 10 to 20 per cent	24	19.3	20,339,688	31.1	73,332,597	21.5	15,617,132	27.4	14.4
Earning 20 to 30 per cent	8	6.1	15,207,724	14.8	27,473,151	13.4	6,654,117	16.6	24.2
Earning 30 to 40 per cent	9	6.1	16,084,284	22.9	33,031,230	14.5	11,576,992	30.9	35.0

[1] Loss.

TABLE 42.—*Production, investment, earnings, and rate of earnings in the producing business, by profit groups, 1914–June 30, 1919*—Continued.

Profit group.	Companies.		Net production.		Net investment.		Earnings.		Annual rate of earnings (per cent).
	Number.	Per cent.	Barrels.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	
1917—Continued.									
Earning 40 to 50 per cent	2	1.5	563,900	0.6	$370,900	0.2	$274,468	0.7	49.1
Earning 50 per cent and over	10	7.6	11,070,724	15.9	13,006,033	8.3	9,858,303	25.4	75.8
Total	131	100.0	69,827,241	100.0	206,843,720	100.0	38,772,279	100.0	18.8
1918.									
Losing money	28	20.9	1,193,823	1.6	11,019,610	4.8	1,479,822	1.9	13.4
Earning less than 10 per cent	34	25.4	4,255,089	5.8	37,520,278	16.4	1,008,361	1.3	2.7
Earning 10 to 20 per cent	35	13.6	14,394,448	19.3	60,449,804	26.4	8,671,272	15.6	14.3
Earning 20 to 30 per cent	19	14.2	16,474,471	22.4	52,361,073	22.9	12,893,984	23.0	24.6
Earning 30 to 40 per cent	8	6.0	5,238,307	7.1	13,696,589	6.0	4,311,554	4.8	31.5
Earning 40 to 50 per cent	6	4.5	9,887,443	13.9	16,010,633	6.8	7,128,177	12.9	47.7
Earning 50 per cent and over	14	10.4	23,073,185	30.9	28,747,743	16.9	21,627,513	38.5	55.9
Total	134	100.0	74,362,314	100.0	228,745,702	100.0	55,724,253	100.0	24.4
1919.[1]									
Losing money	21	17.8	669,721	1.2	9,107,393	3.9	[1]234,165	1.2	[1]2.1
Earning less than 10 per cent	23	19.3	1,303,905	2.6	30,190,277	12.8	405,302	1.2	2.7
Earning 10 to 20 per cent	23	21.0	5,574,318	22.5	74,404,546	31.6	4,930,852	15.7	13.2
Earning 20 to 30 per cent	12	10.1	842,867	2.4	5,636,019	2.4	640,236	2.1	20.0
Earning 30 to 40 per cent	12	10.1	8,403,267	24.7	37,720,689	24.3	8,112,409	26.0	21.8
Earning 40 to 50 per cent	2	1.7	308,304	.8	227,172	.4	190,218	.6	83.0
Earning 50 per cent and over	17	14.3	17,105,481	44.9	57,488,649	24.4	16,282,273	52.1	28.9
Total	119	100.0	33,072,183	100.0	235,360,341	100.0	31,360,375	100.0	26.7
1914–June 30, 1919.									
Losing money	49	36.3	21,653,725	3.0	227,626,474	19.9	[1]5,443,141	[1]2.5	[1]2.3
Earning less than 10 per cent	31	26.9	59,085,589	18.9	237,008,784	22.4	16,557,264	6.4	4.4
Earning 10 to 20 per cent	17	14.4	72,340,144	20.9	207,320,686	23.4	32,853,756	19.8	14.2
Earning 20 to 30 per cent	9	7.8	76,185,467	21.7	151,678,270	13.2	37,112,739	22.4	24.9
Earning 30 to 40 per cent	6	4.6	35,247,402	9.6	103,797,236	6.0	36,086,344	18.8	35.3
Earning 40 to 50 per cent	3	2.3	13,035,727	3.7	18,355,889	1.6	8,808,011	5.1	47.4
Earning 50 per cent and over	8	7.0	67,032,480	12.5	120,543,006	10.5	86,296,222	50.0	61.2
Total	117	100.0	350,582,979	100.0	1,145,658,980	100.0	165,474,181	100.0	26.1

[1] Loss.

[2] First six months.

TABLE 43.—*Cost, net earnings, and investment per barrel based on production and rate of earnings on investment for petroleum producers in California, by companies, 1915.*

No. of company.	Field.	Annual production per well.	Average cost per barrel.	Net earnings per barrel.	Average investment per barrel.	Rate of earnings.
		Barrels.				Per cent.
1	Whittier-Fullerton	260,148	$0.140	$1.038	$0.82	134.7
2	Midway-Sunset	2,975	.228	.310	1.44	62.5
3	McKittrick	15,483	.264	1.003	1.03	95.1
4	Midway-Sunset	36,404	.245	1.300	1.09	126.5
5	Ventura-Newhall	108,547	.269	1.000	1.03	95.7
6	Non-Separable	15,071	.241	.759	1.23	65.2
7	Kern River	8,203	.281	.559	1.41	89.3
8	Midway-Sunset	14,089	.261	.729	1.21	60.1
9	Non-Separable	27,719	.280	.660	1.70	38.9
10	Non-Separable	25,031	.280	.627	2.31	26.2
11	Non-Separable	9,247	.230	.484	.99	48.7
12	Midway-Sunset	20,661	.233	.615	2.80	22.1
13	Whittier-Fullerton	10,229	.231	.607	4.66	13.0
14	Coalinga	26,719	.231	.588	2.99	20.6
15	McKittrick	15,440	.257	.684	1.36	49.9
16	Non-Separable	11,094	.267	.483	2.46	17.6
17	Non-Separable	10,191	.245	.560	2.39	23.4
18	Coalinga	6,207	.413	.747	.70	107.1
19	Whittier-Fullerton	14,060	.419	.763	1.34	56.9
20	Non-Separable	15,158	.439	.645	1.56	41.4
21	Non-Separable	19,434	.462	.727	3.26	22.4
22	McKittrick	21,086	.422	.707	1.69	41.8
23	Non-Separable	5,139	.449	.731	2.90	25.3
24	Midway-Sunset	5,772	.468	.718	1.86	38.6
25	Non-Separable	5,988	.444	.708	4.82	14.8
26	Non-Separable	12,823	.449	.815	.90	90.5
27	Midway-Sunset	6,746	.461	.683	1.39	49.1
28	Midway-Sunset	15,469	.468	.941	2.71	34.7
29	Coalinga	15,468	.470	.974	4.30	22.6
30	Non-Separable	10,461	.465	.735	1.89	38.9
31	Santa Maria	44,698	.468	1.074	3.26	1 32.9
32	Coalinga	22,388	.469	.889	4.05	21.7
33	Midway-Sunset	44,319	.469	.688	2.89	23.7
34	Midway-Sunset	16,288	.467	1.088	2.89	37.3
35	Non-Separable	11,270	.501	.640	1.59	40.2
36	Non-Separable	5,264	.499	.730	14.61	5.1
37	Non-Separable	5,804	.502	.686	4.09	16.8
38	Los Angeles	5,288	.500	.813	1.47	55.7
39	Midway-Sunset	5,288	.501	.688	2.99	23.1
40	Ventura-Newhall	5,448	.500	.688	4.58	15.3
41	Midway-Sunset	5,288	.500	.688	3.67	18.8
42	Non-Separable	7,288	.500	.688	2.99	23.0
43	Kern River	5,158	.504	.679	3.39	20.0
44	Midway-Sunset	4,571	.500	.683	2.61	13.4
45	Santa Maria	14,288	.500	.688	3.79	18.1
46	Midway-Sunset	74,288	.501	.688	.99	69.5
47	Kern River	5,288	.500	.688	4.59	11.8
48	Midway-Sunset	7,139	.500	.688	1.99	33.7
49	Midway-Sunset	4,288	.511	.688	1.99	33.7
50	Non-Separable	5,288	.488	.688	1.99	33.7
51	Santa Maria	15,288	.500	1.263	4.94	1 6.9
52	Midway-Sunset	11,288	.541	.688	6.66	8.1
53	Midway-Sunset	18,648	.501	.688	1.99	34.7
54	Non-Separable	5,288	.500	.688	4.62	11.3
55	Midway-Sunset	5,284	.501	.688	2.94	23.3
56	Ventura-Newhall	112,288	.477	.688	14.73	4.7
57	Midway-Sunset	7,288	.500	.688	2.97	23.1
58	Kern River	5,288	.500	.688	4.59	14.9
59	Midway-Sunset	26,288	.713	.688	2.39	28.9
60	Kern River	[2]	.716	.688	2.14	32.2
61	Midway-Sunset	[2]	.722	.688	1.88	36.6
62	Kern River	5,288	.724	.688	2.84	24.2
63	Midway-Sunset	5,288	.724	.688	2.46	28.1
64	Santa Maria	5,288	.741	.688	2.99	23.1
65	Coalinga	5,288	.744	.688	3.99	17.2
66	Midway-Sunset	5,288	.747	.688	1.99	34.5
67	Midway-Sunset	26,288	.761	.688	4.15	14.6
68	Coalinga	[2]	.764	.688	4.99	17.0
69	Midway-Sunset	4,648	.769	.688	4.97	14.0
70	Kern River	5,288	.781	.688	12.97	12.7
71	Midway-Sunset	15,287	.786	.678	5.93	10.4
72	Coalinga	4,613	.788	.688	5.94	11.4
73	Coalinga	5,288	.788	.688	5.99	9.9
74	Los Angeles	5,288	.788	.688	.99	69.5
75	Kern River	1,961	.800	.681	1.98	34.4

[1] Loss. [2] Number of wells not reported.

TABLE 42.—*Cost, net earnings, and investment per barrel based on production and rate of earnings on investment for petroleum producers in California, by companies, 1918*—Continued.

No. of company.	Field.	Annual production per well.	Average cost per barrel.	Net earnings per barrel.	Average investment per barrel.	Rate of earnings.
		Barrels.				Per cent.
76	Coalinga	4,097	$0.201	$0.424	$2.26	17.1
77	Coalinga	5,207	.206	.279	7.51	3.7
78	Midway-Sunset	12,995	.213	.371	6.39	5.8
79	Kern River	4,719	.213	.671	1.05	64.4
80	Coalinga	12,533	.230	.216	4.02	5.3
81	Los Angeles	25,455	.240	.357	1.30	27.6
82	Coalinga	4,185	.268	.290	2.93	9.1
83	Coalinga	13,595	.286	.263	4.37	5.8
84	Coalinga	4,499	.306	.215	2.27	9.6
85	Midway-Sunset	5,826	.310	.262	3.05	8.6
86	Los Angeles	5,905	.329	.286	20.39	1.2
87	Whittier-Fullerton	1,551	.335	.327	2.49	21.1
88	Kern River	3,415	.350	.150	3.39	4.4
89	Santa Maria	10,009	.353	.260	2.79	9.3
90	Kern River	5,795	.354	.146	1.03	33.5
91	Whittier-Fullerton	3,377	.365	.453	5.43	8.3
92	Ventura-Newhall	5,113	.381	.749	16.48	4.5
93	Midway-Sunset	7,106	.381	.125	.46	27.2
94	Midway-Sunset	4,450	1.008	.992	4.58	21.7
95	Coalinga	4,558	1.009	1.083	2.25	1 2.4
96	Kern River	2,275	1.017	.104	26.11	.4
97	Midway-Sunset	1,645	1.022	.138	1.23	2.5
98	Non-Separable	2,149	1.024	.222	5.24	4.2
99	Coalinga	3,000	1.025	.260	2.73	9.5
100	Coalinga	10,338	1.035	.260	26.43	.9
101	Midway-Sunset	17,139	1.064	.234	11.61	2.0
102	McKittrick	27,215	1.066	.234	11.24	2.0
103	Whittier-Fullerton	1,957	1.097	1.115	13.06	1 8.5
104	Coalinga	1,974	1.103	.497	4.98	9.9
105	Non-Separable	(?)	1.114	.009	11.10	.0
106	Coalinga	2,988	1.125	1.29	26.51	1 4.9
107	Coalinga	13,850	1.127	.141	2.31	6.1
108	Kern River	5,723	1.130	1.298	2.68	1 48.0
109	Coalinga	694	1.142	.008	1.76	.5
110	Coalinga	2,946	1.175	1.009	4.77	1 21.1
111	Coalinga	2,413	1.210	1.021	4.20	1 24.3
112	Kern River	2,964	1.220	1.230	1.25	1 98.1
113	Midway-Sunset	5,881	1.270	1.082	4.67	1 23.2
114	Ventura-Newhall	12,230	1.304	.026	12.25	.2
115	McKittrick	816	1.307	1.260	4.71	1 26.8
116	Coalinga	1,230	1.316	1.293	16.68	1 7.8
117	Whittier-Fullerton	2,119	1.323	.084	2.44	3.5
118	Ventura-Newhall	1,723	1.335	1.279	4.62	1 27.7
119	Whittier-Fullerton	4,685	1.359	1.226	5.05	1 24.3
120	Whittier-Fullerton	1,450	1.366	.113	8.13	1.3
121	Coalinga	4,180	1.443	1.318	4.48	1 29.5
122	Ventura-Newhall	447	1.446	1.487	11.48	1 12.9
123	Santa Maria	42,660	1.498	1.467	14.46	1 10.1
124	Santa Maria	5,661	1.535	.085	4.26	2.0
125	Midway-Sunset	6,180	1.703	1.455	11.14	1 13.0
126	Midway-Sunset	5,273	1.845	1.776	13.85	1 12.8
127	Ventura-Newhall	4,228	1.899	1.681	4.45	1 38.9
128	Ventura-Newhall	5,177	2.191	1 1.143	15.73	1 7.3
129	McKittrick	7,337	2.222	1 1.222	27.79	1 4.4
130	McKittrick	5,280	2.252	1.979	4.98	1 39.7
131	Coalinga	1,519	2.781	1 1.961	15.67	1 12.5
132	Midway-Sunset	4,967	2.967	1 4.115	5.18	1 79.4
133	Midway-Sunset	6,643	4.196	1 2.102	47.69	1 4.4
134	Coalinga	3,613	4.695	1 2.883	46.68	1 6.2
141	Midway-Sunset	15,227	5.364	1 3.884	31.34	1 12

[1] Loss. [2] Number of wells not reported.

TABLE 44.—*Tariff rates filed with Railroad Commission of California for transportation of crude petroleum by pipe lines, Jan. 1, 1920.*

Field.	Company.	From—	To—	Gravity minimum (°Baumé).	Rate per barrel.
Midway	Standard Oil Co. (California)	Midway Station and Signa.	Richmond	15	$0.35
Do	General Pipe Line Co	Puente	Vernon or San Pedro.	17.5	.25
Do	do	do	Mojave	17.5	.135
Do	do	Midway	Vernon	17.5	.25
Do	do	do	Mojave	17.5	.135
Ventura-Newhall	Standard Oil Co. (California)	Piru Canyon	Ventura	23	.15
Do	General Pipe Line Co	Newhall	Vernon or San Pedro.	15.5	.20
Lost Hills	Standard Oil Co. (California)	Lost Hills	Richmond	18	.35
Whittier-Fullerton	do	Northam	El Segundo	25	.05
Kern River	do	Watt Station	Richmond	15	.35
Coalinga	do	Coalinga	do	14	.35
Do	Shell Co. of California	do	Martinez	18	.36

TABLE 45.—*Pipe-line costs of operation and rates for five companies in California, 1914–June 30, 1919.*

Company.	Year.	Shipping point.	Terminal point.	Cost.		Rate per barrel.
				Light.	Heavy.	
Standard Oil Co. (California).	1914	San Joaquin Valley Fields.	Richmond Refinery.	$0.142	$0.164	$0.35
	1915	do	do	.114	.132	.35
	1916	do	do	.126	.155	.35
	1917	do	do	.157	.170	.35
	1918	do	do	.220	.227	.35
	1919	do	do	.213	.220	.35
Associated Oil Co.[2]	1914	do	Avon Refinery	$0.118		.35
	1915	do	do	.111		.35
	1916	do	do	.126		.35
	1917	do	do	.131		.35
	1918	do	do	.194		.35
	1919	do	do	.225		.35
Union Oil Co. of California.	1915	do	Port San Luis	.090		.25
	1916	do	do	.084		.25
	1917	do	do	.089		.25
	1918	do	do	.139		.25
	1919	do	do	.133		.25
General Petroleum Corp.[1]	1917	do	Vernon Refinery	.147		.25
	1918	do	do	.190		.25
	1919	do	do	.207		.25
Shell Co. of California.	1915	Coalinga Field	Martinez Refinery	.130		.35
	1916	do	do	.113		.35
	1917	do	do	.168		.35
	1918	do	do	.199		.35
	1919	do	do	.198		.35
Standard Oil Co. (California).	1914	Whittier-Fullerton Field	El Segundo Refinery	$0.124		.35
	1915	do	do	.084		.35
	1916	do	do	.093	$0.106	.35
	1917	do	do	.097	.120	.35
	1918	do	do	.121	.125	.35
	1919	do	do	.095	.095	.35
Associated Oil Co.	1914	Santa Maria Field	Gaviota Refinery	$0.098		.35
	1915	do	do	.075		.35
	1916	do	do	.091		.35
	1917	do	do	.126		.35
	1918	do	do	.163		.35
	1919	do	do	.094		.35
Union Oil Co. of California.	1915	do	Port San Luis	.088		.35
	1916	do	do	.072		.35
	1917	do	do	.080		.35
	1918	do	do	.095		.35
	1919	do	do	.094		.35

[1] First six months. Rate increased to 25 cents in February, 1918.
[2] General Pipe Line Co.

TABLE 46.—Petroleum refineries in California, Jan. 1, 1920.

Company.	Location of plant.	Date constructed.	Gross plant investment as at Dec. 31, 1919.	Rated daily capacity.	Crude oil run during 1919.	Products.						
						Gasoline.	Kerosene.	Fuel oil.	Lubricants.	Wax.	Asphalt.	Tops.
LARGE COMPANIES.				Barrels.	Barrels.							
Standard Oil Co. (California).	Richmond	1902	$20,987,273.39	65,000	17,941,284	X	X	X	X	...	X	...
	El Segundo	1911	6,215,267.03	35,000	15,707,668	X	X	X	X	X	X	...
	Bakersfield	1913	1,445,166.65	20,000	4,121,454	X	...	X	...	...	...	...
Total			28,604,907.07	115,000	34,770,406							
Union Oil Co. of California.	Oleum	1906	7,198,375.10	22,000	4,933,147	X	X	X	X	...	X	...
	Avila	1910		17,000	3,247,288	X	X	X	...	...	...	X
	Brea	1911		10,000	2,498,391	X	X	X	...	...	...	...
	Santa Paula	1912		600	208,588	X	X	X	...	...	...	X
	Malibe	1913		3,000	804,577	X	X	X	...	...	...	...
	Los Angeles	1919		12,000	76,300	X	X	X	...	...	...	...
Total			7,198,375.10	64,600	12,747,540							
Associated Oil Co.	Avon	1913	2,228,643.50	22,000	5,174,854	X	X	X	...	...	...	X
	Gaviota	1889	611,260.80	10,000	627,200	...	...	X	...	...	...	X
	Los Angeles[1]	1904	362,145.71	10,000	[2] 850,000	...	...	X	...	...	...	...
Total			3,197,250.00	42,000	7,240,554							
General Petroleum Corporation.	Vernon	1913	1,413,782.89	20,000	4,714,000	...	...	X	...	...	...	X
Shell Co. of California	Martinez	1916	4,517,617.54	30,000	6,077,351	X	X	X	X	...	...	...
	Coalinga	1910		2,000	793,793	X	X	X	...	...	...	...
Total			4,517,617.54	32,000	6,871,044							
Total of above 5 companies (15 plants).			45,932,033.19	274,300	66,443,971							
SMALL COMPANIES.												
American Oil Fields Co.	Fellows	1915	142,216.41	10,000	[2] 1,495,000	...	...	X	...	...	...	X
American Petroleum Co.	Coalinga	1917	45,382.95	3,600	[2] 1,180,000	...	...	X	...	...	...	X
Asphaltum & Oil Refining Co.	Los Angeles	1917	11,922.13	500	61,700	X	X	X	...	...	X	...
California Fresno Oil Co.	Fresno	1909	34,600.00	500	85,491	X	X	X	...	...	...	...
California Oil & Asphalt Co.	Vernon	1914	114,542.98	500	33,700	X	X	X	...	...	...	...
Capital Crude Oil Co.	Santa Paula	1909	(3)	100	19,965	X	X	X	...	...	...	...
Continental Petroleum Refining Co.	Coalinga	1919	215,621.60	2,000	305,200	X	X	X	...	...	...	...
Fairchild-Gilmore-Wilton Co.	Vernon		(3)	700	[2] 30,000	...	...	X	...	...	X	...
A. F. Gilmore Co.	Los Angeles	1915	236,240.31	300	[2] 75,000	X	...	X	...	...	...	...
Gilmore Petroleum Co.	do	1915	57,573.00	300	7,513	X	X	X	...	...	...	...
Jordan Oil Co.	do	1920	115,622.00	600	46,100	X	X	X	...	...	...	...
King Refining Co.	Bakersfield	1912	46,107.20	400	62,549	...	...	X	X	X	X	...
Pioneer Paper Co.	Vernon	1907	(3)	400	[2] 45,000	...	...	X	X	X	X	...
Producers Refining Co.	Kern River	1908	61,000.00	150	[2] 55,000	X	X	X	X	X	X	...
Pusante Oil Co.	Chino	1909	45,208.42	1,000	211,500	X	X	X	X	...	X	...
Richfield Oil Co.	Los Angeles	1914	160,277.00	3,000	1,000,000	X	X	X	X	...	X	...
	Bakersfield	1917		600	[2] 91,000							
St. Helens Petroleum Co.	Fullerton		(3)	500	98,000	X	X	X	X	X	X	...
Turner Oil Co.	Los Angeles	1904	225,577.67	1,000	98,000	X	X	X	X	...	X	...
Ventura Refining Co.	Fillmore	1915	1,172,638.49	2,000	1,170,120	X	X	X	X	X	X	...
Vernon Oil Refining Co.	Los Angeles	1916	56,904.41	1,000	208,168	X	X	X	...	...	...	...
Wilshire Oil Co. (Inc.)	do	1916	388,698.31	500	[2] 85,000	X	X	X	...	...	...	X
	Fellows	1919		500		X	X	X	...	...	...	...
Total of 21 small companies.			(3)	33,650	6,172,946							
Total State, 26 companies (36 plants).			(3)	307,650	72,617,917							

[1] Owned by Amalgamated Oil Co., which is controlled by the Associated Oil Co.
[2] Estimated.
[3] Figures on the gross plant investment not available.
[4] Does not include investment in four small plants—one light products, one topping, and two asphalt.

TABLE 47.—*Quantity and proportion of principal refined products obtained from California crude petroleum, 1910–1920.*

Product.	1916		1917		1918	
	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.
Crude petroleum run	2,642,905,234	.....	3,002,805,450	.....	2,781,530,992	.....
Crude equivalent run	.....	.....	.....	.....	145,777,679	.....
Total run	2,642,905,234	.....	3,002,805,450	.....	2,927,308,670	.....
Gasoline and naphtha	293,499,660	11.10	369,231,048	12.29	434,260,494	14.79
Kerosene	126,196,822	4.69	149,192,698	4.97	122,520,624	4.19
Fuel oil and gas oil	1,879,963,164	71.10	2,109,005,450	70.23	2,132,704,139	72.85
Lubricating oil	41,439,576	1.57	73,445,415	2.45	46,940,229	1.60
Other products	205,630,143	7.80	221,272,869	7.36	135,710,633	4.63
Total products	2,546,229,764	96.29	2,922,541,230	97.30	2,871,417,120	97.76
Refining loss	97,095,570	1.78	80,347,114	1.99	65,891,180	2.24
Total	2,643,905,234	100.00	3,002,805,450	100.00	2,937,308,370	100.00

Product.	1919		1920	
	Gallons.	Per cent.	Gallons.	Per cent.
Crude petroleum run	3,092,133,134	.....	3,228,210,160	.....
Crude equivalent run	146,070,991	.....	.....	.....
Total run	3,200,250,125	.....	3,228,210,160	.....
Gasoline and naphtha	417,702,940	13.02	496,385,999	15.38
Kerosene	241,547,166	7.53	207,462,695	6.42
Fuel oil and gas oil	2,300,539,701	71.85	2,305,965,551	69.39
Lubricating oil	65,614,980	2.04	66,661,707	2.06
Other products	112,825,444	3.50	154,196,589	4.77
Total products	3,137,824,233	97.77	3,188,661,744	97.81
Refining loss	71,434,902	2.23	77,548,416	2.39
Total	3,209,259,135	100.00	3,228,210,160	100.00

TABLE 48.—*Quantity and proportion of principal refined products produced by five large refining companies, 1916–1919.*

Product.	1916			1917		
	Total for State.	Five large companies.	Per cent.	Total for State.	Five large companies.	Per cent.
	Gallons.	Gallons.		Gallons.	Gallons.	
Gasoline	293,499,660	161,917,325	91.5	369,231,048	240,994,594	91.3
Engine distillate		221,120,681			108,977,313	
Kerosene	126,196,822	122,450,705	97.1	149,192,698	146,167,221	98.0
Fuel and gas oil	1,879,963,164	1,826,240,005	97.1	2,109,005,450	2,052,936,855	96.9
Lubricating oil	41,439,576	31,672,120	76.4	73,445,415	43,207,048	58.8
Other products (including unfinished oils)	226,225,143	100,205,615	44.8	221,272,869	126,269,697	57.1
Refining loss	97,095,570	45,772,963	97.2	80,347,114	55,467,542	94.1
Total runs	2,643,905,234	2,419,680,307	91.4	3,002,805,450	2,806,611,750	91.7

TABLE 48.—*Quantity and proportion of principal refined products produced by five large refining companies, 1916–1919*—Continued.

Product.	1918			1919		
	Total for State.	Five large companies.	Per cent.	Total for State.	Five large companies.	Per cent.
	Gallons.	Gallons.		Gallons.	Gallons.	
Gasoline	404,982,494	404,080,998	99.8	417,792,940	313,577,978	97.1
Engine distillate	114,119,257	91,715,883				
Kerosene	109,880,454	97,201,743	84.9	241,547,136	227,589,216	98.3
Fuel and gas oil	2,122,784,156	1,978,333,627	93.0	2,409,439,231	2,009,439,231	83.1
Lubricating oil	96,940,253	92,986,117	95.4	98,614,880	98,167,350	99.5
Other products (including unfinished oils)	123,719,825	117,843,167	95.1	112,329,444	109,277,365	97.3
Refining loss	63,859,180	54,482,114	82.9	71,434,909	67,626,861	94.7
Total runs	2,967,306,370	2,836,497,341	89.6	2,950,286,135	2,923,273,930	91.1

TABLE 49.—*Refinery yields for four large companies in California, 1916–June 30, 1919.*

Product.	Company "A."				Company "B."			
	1916	1917	1918	1919[1]	1916	1917	1918	1919[1]
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
Gasoline	7.17	8.35	11.13	14.88	3.30	3.75	4.14	5.09
Engine distillate	6.36	7.58	8.45	7.21	3.41	2.89	3.97	1.62
Kerosene			.36	.52	10.16	3.43	.00	6.00
Fuel oil and gas oil	79.99	77.27	73.11	71.98	73.79	74.66	73.25	75.62
Lubricating oil		.04	.17		1.02	2.21	4.01	3.15
Asphaltum					.21	.23		
Other products	6.65	5.60	5.26	4.07	6.59	11.11	11.62	3.76
Refining loss	.73	1.19	1.51	1.33	1.73	1.73	2.35	1.86
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Product.	Company "C."				Company "D."			
	1916	1917	1918	1919[1]	1916	1917	1918	1919[1]
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
Gasoline	7.22	10.13	13.79	11.18	11.07	11.27	12.03	10.99
Engine distillate	4.13	3.10	4.13	2.62	3.65	4.73	4.99	4.69
Kerosene	6.55	7.94	6.32	12.79	1.78	2.27	1.44	2.36
Fuel oil and gas oil	67.43	66.47	64.89	66.90	75.19	73.45	75.21	75.77
Lubricating oil	1.88	2.15	2.60	2.27	.00	.00	.00	.47
Asphaltum	1.00	1.59	1.13	1.62	2.17	1.57	1.16	2.31
Other products	9.99	7.10	5.49	.50	2.94	2.46	2.06	3.25
Refining loss	1.86	1.52	2.12	2.44	3.20	3.25	2.63	2.41
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

[1] First 6 months.

TABLE 50.—*Refinery yields for four complete refining plants consuming California crude petroleum, 1916–June 30, 1919.*

Product.	Plant "A."				Plant "B."			
	1916	1917	1918	1919[1]	1916	1917	1918	1919[1]
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
Gasoline	7.38	9.27	10.80	9.51	13.07	15.49	15.97	16.09
Engine distillate	6.60	4.05	4.21	3.08	.72	1.77	2.66	1.98
Kerosene	11.00	13.78	9.66	15.53	2.66	2.98	2.23	3.13
Fuel and gas oil	84.70	81.69	82.05	80.82	73.23	76.20	67.02	68.34
Lubricating oil	3.66	3.64	4.98	5.26	.94	.77	.87	.89
Asphaltum	1.78	2.14	1.46	1.36	1.53	.48	.84	.89
Other products	3.39	3.42	3.68	1.68	3.66	3.66	7.48	1.97
Refining loss	2.17	2.01	2.76	2.34	1.87	2.03	3.03	2.15
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Product.	Plant "C."				Plant "D."			
	1916	1917	1918	1919[1]	1916	1917	1918	1919[1]
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
Gasoline	15.14	16.71	26.49	17.14	3.90	5.68	5.07	5.37
Engine distillate	6.64	7.66	7.28	8.65	10.29	14.41	17.14	1.24
Kerosene	3.92	4.94	5.85	5.09	10.67	1.30	.66	5.31
Fuel and gas oil	62.06	57.11	44.49	56.57	73.03	73.43	71.32	[2]83.09
Lubricating oil	1.00	1.59	1.45	1.05	.57	2.48	4.39	3.00
Asphaltum	4.82	5.49	3.47	5.35	.17	.36		
Other products	2.55	2.23	2.07	2.17				
Refining loss	3.88	3.27	3.34	3.40	1.75	1.90	2.47	2.99
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

[1] First 6 months.

[2] Includes some stove oil.

TABLE 51.—*Cost of crude petroleum and cost of refining, as revised by the Commission, 1914–June 30, 1919.*

	Crude run.[1]	Crude cost.	Refinery operating.	General and administrative.	Depreciation.	Total operating.	Total cost.
	Barrels.						
1914:							
Commission's figures	30,322,020	$21,055,470.90	$3,090,858.11	$1,112,719.43	$823,959.39	$5,027,437.93	$27,082,908.73
Company's figures	30,322,020	30,460,291.45	3,090,858.11	1,112,719.43	697,993.44	4,917,511.98	35,377,743.43
Difference		8,804,780.55			215,965.95	215,925.95	8,294,834.70
1915:							
Commission's figures	48,004,205	26,573,067.06	4,243,293.18	1,305,045.91	1,009,254.09	6,557,593.18	33,130,660.24
Company's figures	48,004,205	53,290,512.12	4,243,293.18	1,305,045.91	820,207.07	6,370,546.16	59,661,058.28
Difference		6,717,445.05			189,016.99	186,016.98	6,469,128.13
1916:							
Commission's figures	57,583,223	33,787,295.01	5,393,789.28	1,992,409.66	1,355,782.46	8,731,981.39	42,519,216.40
Company's figures	57,583,223	55,308,445.03	5,393,789.28	1,992,409.66	1,142,982.05	8,518,881.00	63,906,966.03
Difference		21,691,180.61			213,400.39	213,400.39	21,387,780.23
1917:							
Commission's figures	66,909,484	49,988,432.79	5,048,699.51	3,459,039.05	1,529,313.74	13,047,052.30	63,035,485.09
Company's figures	66,909,484	85,600,248.24	5,048,699.51	3,459,039.05	1,404,747.86	12,912,486.42	98,512,733.66
Difference		33,611,815.45			124,565.88	134,565.88	33,477,249.57
1918:							
Commission's figures	62,345,140	55,486,977.23	10,996,931.07	4,218,232.19	1,765,447.72	16,980,710.98	72,067,686.21
Company's figures	62,345,140	92,910,734.98	10,996,931.07	4,218,232.19	1,690,218.55	16,905,481.81	110,416,216.79
Difference		38,423,757.75			75,229.17	75,229.17	38,348,528.58
1919:[2]							
Commission's figures	32,850,104	20,626,874.17	7,302,029.15	2,905,782.97	932,460.57	10,741,262.69	41,367,566.86
Company's figures	32,850,104	53,503,198.57	7,302,029.15	2,905,782.97	800,656.64	10,708,468.76	64,211,667.33
Difference		22,876,919.40			32,823.93	32,823.93	22,844,095.47

[1] Includes purchased unfinished oil rerun.

[2] First 6 months.

TABLE 52.—*Detailed cost of refining a barrel of crude petroleum, by companies, 1914–June 30, 1919.*

Year.	Crude oil cost.		Operating cost.								Total cost.	
			Refinery operating expense.		General and administrative expense.		Depreciation.		Total operating expense.			
	Per bbl.	Index No.	Per bbl.	Index No.	Per bbl.	Index No.	Per bbl.	Index No.	Per bbl.	Index No.	Per bbl.	Index No.
Company "A":												
1914	$0.702	100	$0.043	100	$0.011	100	$0.014	100	$0.057	100	$0.759	100
1915	.533	76	.034	80	.011	99	.014	102	.049	86	.582	76
1916	.799	113	.036	84	.009	76	.012	85	.048	83	.845	110
1917	1.083	154	.061	146	.013	113	.013	91	.067	139	1.170	152
1918	1.220	174	.060	214	.018	157	.015	107	.123	182	1.340	174
1919 [1]	1.462	213	.089	285	.022	192	.018	130	.130	206	1.631	212
Company "B":												
1916	.452	100	.062	100	.009	100	.008	100	.149	100	.622	100
1917	.492	108	.066	106	.009	81	.006	80	.144	97	.636	102
1918	.728	160	.120	147	.004	88	.006	101	.126	128	.906	120
1919 [1]	.753	166	.110	135	.020	140	.008	98	.197	132	.950	148
Company "C":												
1914	.381	100	.110	100	.024	100	.024	100	.166	100	.740	100
1915	.532	90	.094	85	.033	98	.025	107	.152	91	.674	90
1916	.546	94	.109	99	.049	147	.031	133	.190	113	.735	98
1917	.710	129	.147	134	.060	208	.031	133	.269	134	.977	131
1918	.784	135	.229	202	.107	321	.041	170	.371	221	1.155	154
1919 [1]	.900	148	.280	253	.114	341	.049	184	.443	265	1.343	179
Company "D":												
1916	.631	100	.114	100	.013	100	.012	100	.138	100	.769	100
1917	.765	121	.136	119	.015	135	.013	108	.164	119	.929	121
1918	.980	139	.154	135	.026	192	.015	125	.193	139	1.190	155
1919 [1]	.945	149	.353	294	.029	199	.045	125	.271	196	1.214	158
Company "E":												
1916	.577	100	.040	100	.019	100	.022	100	.081	100	.658	100
1917	.715	124	.062	155	.027	143	.033	150	.123	151	.837	128
1918	1.030	180	.082	206	.047	246	.026	205	.155	221	1.171	183
1919 [1]	.884	202	.090	301	.051	269	.006	289	.157	234	1.071	168
Total five companies:												
1914	.696	100	.102	100	.020	100	.022	100	.135	100	.731	100
1915	.540	94	.086	87	.027	99	.022	98	.126	99	.666	93
1916	.686	98	.094	92	.035	113	.022	104	.151	98	.708	98
1917	.747	125	.120	118	.033	169	.023	101	.156	136	.903	125
1918	.983	137	.170	167	.006	222	.026	135	.206	173	1.189	154
1919 [1]	.953	155	.227	218	.070	248	.029	135	.327	211	1.280	166

[1] First 6 months.

TABLE 68.—*Combined f. o. b. refinery realizations of principal petroleum products for five large companies, 1914–June 30, 1919.*

Product.	Gallons.	Amount.	Average realization per gallon.
1914:			
Gasoline	97,080,639	$8,823,112.43	$0.091
Engine distillate	2,743,761	90,669.01	.033
Kerosene	176,404,480	6,736,622.26	.038
Fuel oil	1,364,622,030	18,576,443.20	.015
Gas oil	28,924,962	539,227.33	.018
Lubricating oil	13,480,582	2,170,778.86	.161
Asphaltum	14,598,541	501,208.06	.033
Other products	20,811,476	1,392,370.45	.043
Total	1,648,041,493	38,736,854.58	.024
1915:			
Gasoline	162,115,742	12,243,256.88	.075
Engine distillate	22,789,764	1,011,862.11	.044
Kerosene	127,958,298	5,164,998.45	.040
Fuel oil	1,618,736,026	20,690,656.63	.014
Gas oil	27,370,293	535,573.14	.020
Lubricating oil	20,998,372	3,062,196.77	.146
Asphaltum	26,730,203	964,876.82	.036
Other products	23,686,185	798,773.13	.034
Total	1,983,387,931	44,484,195.43	.022
1916:			
Gasoline	173,164,660	24,982,145.69	.144
Engine distillate	168,389,266	6,239,491.72	.037
Kerosene	122,988,129	5,751,648.88	.046
Fuel oil	1,994,220,285	27,909,500.18	.014
Gas oil	22,486,657	775,488.21	.034
Lubricating oil	28,105,008	4,035,436.74	.141
Asphaltum	20,811,559	1,000,580.23	.022
Other products	45,080,374	2,827,982.65	.063
Total	2,541,316,916	74,422,279.40	.029
1917:			
Gasoline	241,286,065	35,051,267.41	.139
Engine distillate	122,967,175	5,040,452.86	.041
Kerosene	137,197,884	6,716,223.45	.049
Fuel oil	2,301,681,211	41,557,791.89	.019
Gas oil	37,310,516	1,120,421.13	.030
Lubricating oil	44,445,808	7,339,588.77	.165
Asphaltum	30,774,486	1,322,499.74	.049
Other products	69,197,898	5,320,916.25	.076
Total	2,985,222,697	109,217,322.20	.036
1918:			
Gasoline	294,810,817	48,501,151.96	.138
Engine distillate	132,130,489	9,624,320.35	.073
Kerosene	111,611,702	5,724,268.26	.051
Fuel oil	2,147,739,169	60,934,414.85	.028
Gas oil	29,722,674	1,369,125.39	.047
Lubricating oil	68,459,914	11,612,710.20	.170
Asphaltum	30,891,498	1,236,118.49	.040
Other products	77,760,744	7,238,606.86	.093
Total	2,893,126,976	146,241,626.30	.050
1919:[1]			
Gasoline	139,088,743	23,745,545.35	.170
Engine distillate	48,669,082	2,365,160.73	.049
Kerosene	102,022,823	5,220,102.37	.051
Fuel oil	885,085,470	20,040,226.55	.023
Gas oil	17,885,849	880,722.43	.049
Lubricating oil	26,576,289	5,454,085.15	.205
Asphaltum	9,572,063	905,781.37	.071
Other products	26,445,687	2,899,616.40	.080
Total	1,261,760,030	72,069,600.35	.057

[1] First 6 months.

TABLE 54.—*Refinery investment, as shown by companies' records and as revised by Commission, for five large companies, 1914–June 30, 1919.*

Company and item.	1914, Dec. 31.	1915, Dec. 31.	1916, Dec. 31.
Standard Oil Co. (California):			
Gross plant investment	$16,961,516.99	$19,316,988.89	$21,613,971.27
Accrued depreciation shown by company	2,649,861.43	2,829,180.13	4,491,821.31
Net plant investment shown by company	14,311,697.56	16,486,872.64	17,122,150.00
Depreciation adjustment to 5 per cent basis	1 284,046.92	1 513,464.08	1 913,088.32
Net plant investment with depreciation at 5 per cent	14,027,650.64	15,977,008.56	16,209,115.04
Refinery pro rata of general office investment	286,477.15	286,668.76	274,980.60
Net working capital reported by company	10,494,880.08	10,945,201.61	20,569,891.54
Total refinery investment	25,808,197.32	27,749,800.93	37,053,987.18
Union Oil Co. of California:			
Gross plant investment	2,465,765.72	2,883,230.09	3,373,207.27
Accrued depreciation shown by company	317,451.46	370,287.91	465,342.17
Net plant investment shown by company	2,238,313.26	2,189,941.20	2,913,865.10
Depreciation adjustment to 5 per cent basis		4,166.62	80,289.44
Net plant investment with depreciation at 5 per cent	2,238,313.26	2,204,107.82	2,994,154.54
Net working capital reported by company	671,000.37	700,965.50	1,103,495.22
Total refinery investment	2,907,312.63	2,905,052.32	4,097,903.46
Shell Co. of California:			
Gross plant investment			3,185,562.20
Accrued depreciation shown by company			370,478.67
Net plant investment shown by company			2,815,083.73
Depreciation adjustment to 5 per cent basis			68,081.70
Net plant investment with depreciation at 5 per cent			2,886,324.43
Net working capital reported by company			1,091,279.86
Total refinery investment			4,077,115.29
Associated Oil Co.:			
Gross plant investment	1,457,995.81	1,945,345.62	2,061,707.09
Accrued depreciation shown by company	180,557.41	209,433.89	316,631.13
Net plant investment shown by company	1,277,038.40	1,631,913.02	1,745,075.96
Depreciation adjustment to 5 per cent basis	13,191.00	45,404.65	28,818.00
Net plant investment with depreciation at 5 per cent	1,320,189.40	1,677,317.67	1,695,258.96
Refinery pro rata of other fixed assets	65,726.73	105,725.73	138,660.01
Net working capital reported by company	351,145.06	327,030.28	454,023.64
Total refinery investment	1,672,061.71	1,810,073.66	2,287,707.60
General Petroleum Corporation:			
Gross plant investment			455,645.75
Accrued depreciation shown by company			11,651.80
Net plant investment shown by company			447,993.95
Depreciation adjustment to 5 per cent basis			4,765.61
Net plant investment with depreciation at 5 per cent			452,759.57
Net working capital reported by company			140,783.25
Total refinery investment			593,073.82
Total (five companies):			
Gross plant investment	20,923,301.72	27,993,565.72	30,689,993.58
Accrued depreciation shown by companies	3,147,940.30	3,407,901.93	5,313,274.77
Net plant investment shown by companies	17,775,361.42	24,585,663.79	25,376,718.81
Depreciation adjustment to 5 per cent basis	1,315,885.56	1,463,045.74	1,077,343.17
Net plant investment with depreciation at 5 per cent	17,090,252.17	23,122,617.99	24,299,375.64
Refinery pro rata of other fixed assets	352,203.88	392,394.49	413,640.61
Net working capital reported by companies	30,317,025.49	30,982,403.24	35,170,291.54
Total refinery investment	47,759,481.54	54,497,415.72	59,883,307.79

1 Deduction.

TABLE 54.—*Refinery investment, as shown by companies' records and as revised by Commission, for five large companies, 1914–June 30, 1919*—Continued.

Company and item.	1917, Dec. 31.	1918, Dec. 31.	1919, June 30.
Standard Oil Co. (California):			
Gross plant investment	$24,580,082.92	$27,936,918.12	$29,641,826.12
Accrued depreciation shown by company	5,030,745.55	6,037,730.14	7,265,202.29
Net plant investment shown by company	19,070,337.37	21,399,188.98	22,376,624.33
Depreciation adjustment to 5 per cent basis	1,978,686.22	1,846,716.75	2,078,433.91
Net plant investment with depreciation at 5 per cent	17,091,806.15	19,450,482.23	20,298,090.32
Refinery pro rata of general office investment	625,479.67	675,472.10	671,813.04
Net working capital reported by company	19,721,196.68	21,035,300.00	23,694,125.10
Total refinery investment	37,775,410.40	41,704,256.33	45,655,730.46
Union Oil Co. of California:			
Gross plant investment	3,927,886.65	5,045,982.86	5,809,277.34
Accrued depreciation shown by company	913,450.26	852,606.86	905,097.60
Net plant investment shown by company	3,226,126.39	4,193,076.30	4,907,179.65
Depreciation adjustment to 5 per cent basis	100,113.78	315,917.00	307,082.11
Net plant investment with depreciation at 5 per cent	3,314,243.17	4,508,993.30	5,174,771.76
Net working capital reported by company	2,027,271.38	1,518,486.30	1,467,581.93
Total refinery investment	5,541,513.55	6,027,479.59	6,642,353.69
Shell Co. of California:			
Gross plant investment	3,575,031.40	4,045,856.51	4,267,627.90
Accrued depreciation shown by company	508,401.09	1,023,673.66	1,259,999.27
Net plant investment shown by company	3,061,694.30	3,021,982.03	3,007,428.63
Depreciation adjustment to 5 per cent basis	206,670.39	417,221.91	221,302.37
Net plant investment with depreciation at 5 per cent	3,218,364.67	3,439,194.54	3,228,731.00
Net working capital reported by company	1,833,408.26	2,406,620.23	4,126,698.44
Total refinery investment	5,051,772.93	6,215,815.27	7,355,429.04
Associated Oil Co.:			
Gross plant investment	2,726,410.92	2,319,971.20	2,324,518.09
Accrued depreciation shown by company	498,462.96	806,677.71	900,344.49
Net plant investment shown by company	1,927,947.32	1,513,293.49	1,974,204.47
Depreciation adjustment to 5 per cent basis	126,695.15	198,401.17	223,632.90
Net plant investment with depreciation at 5 per cent	1,953,642.47	2,018,705.26	2,197,837.37
Refinery pro rata of other fixed assets	102,749.44	106,468.18	115,707.13
Net working capital reported by company	115,180.03	217,494.04	204,503.70
Total refinery investment	2,171,572.00	2,342,667.48	2,518,048.20
General Petroleum Corporation:			
Gross plant investment	922,472.19	1,271,308.18	1,295,079.11
Accrued depreciation shown by company	30,873.23	95,634.09	139,006.39
Net plant investment shown by company	891,598.96	1,175,644.18	1,156,152.82
Depreciation adjustment to 5 per cent basis	14,141.99	26,060.30	46,702.77
Net plant investment with depreciation at 5 per cent	877,041.99	1,211,694.48	1,141,945.39
Net working capital reported by company	376,230.18	605,993.15	606,240.61
Total refinery investment	1,475,366.45	1,795,767.63	1,731,495.91
Total (five companies):			
Gross plant investment	35,251,302.04	40,609,227.47	43,336,428.57
Accrued depreciation shown by companies	7,184,942.09	9,126,341.34	10,307,650.24
Net plant investment shown by companies	28,066,343.47	31,470,886.13	33,028,413.41
Depreciation adjustment to 5 per cent basis	1 811,760.04	1 867,139.23	1 942,985.16
Net plant investment with depreciation at 5 per cent	27,375,086.30	30,543,126.90	32,142,428.25
Refinery pro rata of other fixed assets	625,229.01	678,893.34	616,279.17
Net working capital reported by companies	24,377,373.97	27,121,913.52	31,065,657.04
Total refinery investment	52,077,229.31	58,313,933.77	64,416,364.76

1 Deduction.

TABLE 55.—*Refinery investment per barrel of crude petroleum consumed for five large companies, 1914–June 30, 1919.*

Company.	Year.	Refinery investment.	Crude and purchased unfinished oils run.	Average per barrel (annual basis).
			Barrels.	
Standard Oil Co. (California)	1914	$26,396,157.28	21,772,573	$1.035
	1915	35,748,893.56	24,422,038	1.037
	1916	37,008,087.13	21,203,302	1.175
	1917	37,775,410.40	26,161,322	1.074
	1918	41,764,206.26	20,324,943	1.344
	[1] 1919	45,535,730.40	24,980,481	1.345
Shell Co. of California	1914			
	1915			
	1916	4,979,114.30	5,893,140	.851
	1917	5,053,772.92	6,827,845	.756
	1918	6,315,814.37	6,792,152	.930
	[1] 1919	7,055,420.94	5,675,073	1.042
Union Oil Co. of California	1914			
	1915	3,005,053.22	8,469,812	.355
	1916	4,007,908.49	9,695,946	.405
	1917	5,541,513.65	10,164,274	.545
	1918	6,027,458.19	11,668,208	.517
	[1] 1919	6,812,353.69	6,112,202	.555
Associated Oil Co.	1914	1,672,081.71	4,840,044	.346
	1915	1,816,672.56	5,072,839	.357
	1916	2,530,707.83	7,926,199	.319
	1917	2,231,563.69	8,156,207	.274
	1918	2,409,693.05	7,136,867	.338
	[1] 1919	2,646,205.16	5,380,358	.497
General Petroleum Corporation	1914			
	1915			
	1916	892,075.82	83,994,877	.102
	1917	1,473,286.46	6,740,788	.219
	1918	1,796,707.63	6,222,698	.289
	[1] 1919	1,751,493.91	2,894,971	.302
Total of all companies	1914	33,072,339.29	32,506,630	.978
	1915	40,570,626.34	38,064,289	.845
	1916	48,116,893.77	37,588,324	.823
	1917	52,077,546.71	48,033,436	.778
	1918	56,513,910.49	52,765,140	.857
	[1] 1919	64,419,295.35	32,972,363	.980

[1] First six months. [2] Last six months.

TABLE 56.—*Marketing investment for four large marketing companies, 1914–June 30, 1919.*

Company and item.	1914, Dec. 31.	1915, Dec. 31.	1916, Dec. 31.
Standard Oil Co. (California):			
Gross plant investment	$5,709,494.15	$7,427,119.75	$9,017,846.76
Accrued depreciation	1,196,866.57	1,627,941.17	2,130,668.79
Net plant investment	4,602,627.58	5,699,178.59	6,887,187.91
Marketing pro rata of general office investment	114,922.07	130,222.06	149,279.36
Net working capital	8,373,139.06	8,039,191.61	10,848,464.02
Net marketing investment, including working capital	14,091,708.71	13,958,592.26	17,882,931.29
Union Oil Co. of California:			
Gross plant investment	3,721,365.92	4,051,013.01	4,228,631.51
Accrued depreciation	308,339.72	290,101.43	378,542.43
Net plant investment	3,413,026.20	3,660,911.58	3,847,089.08
Net working capital	6,413,460.23	7,324,997.53	10,340,938.23
Net marketing investment, including working capital	9,820,546.43	10,985,909.11	13,906,613.31
Associated Oil Co.:			
Gross plant investment	1,223,043.88	2,068,147.26	2,197,942.18
Accrued depreciation	614,054.50	705,283.50	787,719.14
Net plant investment	1,208,989.38	1,220,863.66	1,410,223.04
Net working capital	4,370,481.41	5,444,499.05	3,260,813.65
Net marketing investment, including working capital	5,579,470.79	4,664,362.71	4,671,035.69
Shell Co. of California:			
Gross plant investment			1,331,414.20
Accrued depreciation			180,071.68
Net plant investment			1,151,342.52
Net working capital			826,679.68
Net marketing investment, including working capital			2,078,222.20
Combined investment for four companies:			
Gross plant investment	12,243,903.95	13,544,279.82	15,970,834.65
Accrued depreciation	2,119,260.79	2,624,326.10	3,504,002.01
Net plant investment	10,220,643.16	10,729,953.72	12,075,841.64
Marketing pro rata of general office investment	114,922.07	130,222.06	149,279.36
Net working capital	19,156,080.69	18,778,688.19	25,276,710.54
Net marketing investment, including working capital	29,491,705.92	29,638,864.97	37,479,831.54

TABLE 56.—*Marketing investment for four large marketing companies, 1914–June 30, 1919*—Continued.

Company and item.	1917, Dec. 31.	1918, Dec. 31.	1919, June 30.
Standard Oil Co. (California):			
Gross plant investment	$10,618,203.69	$12,146,001.15	$13,243,209.32
Accrued depreciation	2,759,525.39	3,462,765.98	3,847,280.58
Net plant investment	7,858,780.30	8,683,235.17	9,405,012.77
Marketing pro rata of general office investment	169,283.95	154,780.49	187,619.13
Net working capital	12,943,966.91	15,017,870.75	14,459,918.02
Net marketing investment, including working capital	20,949,061.16	23,855,443.39	24,972,549.51
Union Oil Co. of California:			
Gross plant investment	5,010,903.46	6,461,451.53	7,007,819.13
Accrued depreciation	871,302.39	1,096,179.10	1,462,718.55
Net plant investment	4,139,598.07	5,365,272.73	5,545,100.57
Net working capital	11,830,759.41	14,119,439.94	14,198,117.42
Net marketing investment, including working capital	15,970,357.48	19,483,712.67	19,663,217.99
Associated Oil Co.:			
Gross plant investment	2,289,435.43	3,313,318.67	3,478,088.89
Accrued depreciation	933,062.31	998,714.03	972,954.05
Net plant investment	1,356,362.12	1,326,604.64	1,503,033.64
Net working capital	3,357,948.78	5,103,467.03	6,361,035.82
Net marketing investment, including working capital	4,704,311.90	6,430,071.67	7,864,081.46
Shell Co. of California:			
Gross plant investment	1,898,348.29	1,930,340.27	2,022,603.92
Accrued depreciation	555,324.60	714,861.07	890,545.20
Net plant investment	1,343,023.69	1,224,479.20	1,132,058.72
Net working capital	851,556.80	1,085,251.45	956,359.04
Net marketing investment, including working capital	2,194,579.99	2,310,730.65	2,088,417.76
Combined investment for four companies:			
Gross plant investment	19,816,970.77	22,850,011.32	24,751,721.06
Accrued depreciation	5,119,414.79	6,272,520.18	7,189,504.36
Net plant investment	14,703,304.98	16,577,491.14	17,565,227.30
Marketing pro rata of general office investment	148,203.95	154,780.49	157,619.13
Net working capital	28,983,180.60	35,330,055.15	36,814,030.20
Net marketing investment, including working capital	43,818,039.53	52,057,835.78	53,528,968.73

TABLE 57.—*Marketing investment, per barrel of petroleum products sold, for four large companies, 1914–June 30, 1919.*

Company.	Year.	Net marketing investment.	Total sales (42-gallon barrels).	Average marketing investment per barrel (annual basis).
Standard Oil Co. (California)	1914	$14,698,709.71	23,922,083	$0.[illegible]
	1915	13,956,408.08	22,892,283	.618
	1916	17,833,087.39	26,854,661	.684
	1917	20,940,661.76	31,698,572	.681
	1918	22,855,442.39	31,926,463	.747
	[1] 1919	22,972,549.51	15,367,823	.827
Union Oil Co. of California	1915	10,963,600.11	7,963,604	1.[illegible]
	1916	12,800,612.33	8,446,685	1.471
	1917	15,670,337.46	9,940,174	1.[illegible]
	1918	19,462,712.67	11,142,059	1.749
	[1] 1919	19,063,217.99	5,596,589	1.[illegible]
Associated Oil Co.	1914	5,579,450.73	15,460,941	.[illegible]
	1915	4,684,262.71	15,290,331	.306
	1916	4,871,083.60	18,180,822	.267
	1917	4,704,211.80	18,909,845	.249
	1918	6,420,971.07	14,459,474	.444
	[1] 1919	7,864,681.46	6,374,313	.617
Shell Co. of California	1914			
	1915			
	1916	2,078,221.25	5,724,951	.363
	1917	2,194,378.09	6,940,304	.316
	1918	2,319,730.65	7,670,774	.302
	[1] 1919	2,086,417.78	3,150,636	.[illegible]
All companies	1914	19,471,160.44	39,383,024	.[illegible]
	1915	29,624,564.86	45,935,096	.645
	1916	38,478,931.58	60,197,009	.639
	1917	43,818,009.53	67,305,895	.[illegible]
	1918	52,057,856.78	65,230,739	.798
	[1] 1919	53,536,866.72	30,731,641	.[illegible]

[1] June 30.

TABLE 58.—*Earnings in refining and marketing business, as shown by companies' records and as revised by Commission, for companies reporting departmental earnings, 1914–June 30, 1919.*

Company.	Year.	Earnings shown on company's books.	Depreciation adjusted to 5 per cent.	Net refinery earnings.
Associated Oil Co.	1914	[1] $742,391.98	$15,121.03	[1] $734,140.39
	1915	1,871,355.04	27,283.65	1,844,071.39
	1916	[1] 1,657,700.86	30,913.92	[1] 1,626,784.94
	1917	[1] 1,256,062.41	49,372.35	[1] 1,205,704.86
	1918	1,848,589.10	66,705.02	1,915,294.12
	[2] 1919	1,074,430.29	30,431.73	1,104,861.13
Standard Oil Co. (California)	1914	2,205,360.45	[2] 234,046.88	1,974,512.33
	1915	3,267,492.39	[2] 278,447.20	3,098,045.19
	1916	2,580,765.42	[2] 305,541.44	3,192,223.81
	1917	3,220,891.20	[2] 466,497.70	3,454,393.69
	1918	15,205,997.29	[2] 470,186.53	14,735,810.76
	[2] 1919	6,021,560.15	[2] 223,714.16	5,791,865.99
Union Oil Co. of California	1915	605,248.24	4,146.62	600,204.86
	1916	1,402,927.39	86,422.62	1,736,280.21
	1917	2,098,396.26	98,516.24	2,158,112.70
	1918	1,548,482.92	125,601.31	1,668,284.24
	[2] 1919	2,202,906.57	51,675.02	2,254,463.59

[1] Loss. [2] First six months. [3] Deduction.

TABLE 59.—*Earnings in refining and marketing business, for Shell Co. of California, as computed by the Commission, 1916–June 30, 1919.*

Company and item.	1916	1917	1918	1919 [1]
Shell Co. of California:				
Earnings from sales reported by company	$632,430.75	$413,402.82	$1,311,204.62	$911,371.55
Adjustments by the Commission:				
Earnings computed for production department	[2] 550,430.20	[2] 556,140.24	[2] 2,208,079.62	[2] 2,114,602.82
Earnings from pipe line department				[2] 402,630.82
Depreciation adjustment to 5 per cent basis	43,081.70	173,638.57	180,552.64	108,071.06
Earnings on refining and marketing as computed by Commission	6,022.19	30,601.85	[3] 704,262.20	[2] 1,488,704.14

[1] First six months. [2] Deductions. [3] Loss.

TABLE 60.—*Cost of principal products allocated on basis of sales realization and margin of profit, as computed by the Commission, five companies combined, in California, 1914–June 30, 1919.*

Year.	Gasoline.			Engine distillate.			Kerosene.			Fuel and gas oil.		
	F. o. b. refinery, realization per gallon.	Cost per gallon.	Margin.	F. o. b. refinery, realization per gallon.	Cost per gallon.	Margin.	F. o. b. refinery, realization per gallon.	Cost per gallon.	Margin.	F. o. b. refinery, realization per barrel.	Cost per barrel.	Margin.
1914	$0.0910	$0.0900	$0.0010	$0.0332	$0.0219	$0.0113	$0.0392	$0.0262	$0.0130	$0.6061	$0.4032	$0.2029
1915	.0751	.0520	.0231	.0444	.0307	.0137	.0404	.0280	.0124	.5712	.3949	.1764
1916	.1419	.0789	.0630	.0576	.0320	.0256	.0504	.0351	.0233	.9029	.5579	.3446
1917	.1578	.0932	.0996	.0654	.0393	.0260	.0690	.0274	.0216	.7099	.4483	.2486
1918	.1477	.0832	.0745	.0721	.0380	.0341	.0314	.0271	.0043	1.1925	.6300	.5625
1919 [1]	.1516	.0839	.0677	.0811	.0469	.0362	.0522	.0299	.0223	1.4574	.9064	.5510

Year.	Lubricating oil.			Other products.			All products.		
	F. o. b. refinery, realization per gallon.	Cost per gallon.	Margin.	F. o. b. refinery, realization per gallon.	Cost per gallon.	Margin.	F. o. b. refinery, realization per barrel.	Cost per barrel.	Margin.
1914	$0.1600	$0.1060	$0.0540	$0.0434	$0.0287	$0.0147	$1.1307	$0.7512	$0.3984
1915	.1475	.1021	.0454	.0337	.0233	.0104	1.0078	.6975	.3103
1916	.1406	.0781	.0625	.0414	.0306	.0248	1.3274	.7284	.5990
1917	.1629	.0911	.0718	.0787	.0453	.0334	1.6833	.9421	.7432
1918	.1756	.0926	.0830	.0939	.0490	.0439	2.1946	1.1578	1.0368
1919 [1]	.2052	.1136	.0916	.0949	.0525	.0424	2.2750	1.2662	1.0088

[1] First six months.

TABLE 61.—*Yields of principal refined products, as reported by refining companies east of the Rocky Mountains, 1919.*

Section and grade of crude.	Number of plants.	Crude petroleum consumed.	Percentage of products.						
			Gasoline.	Kerosene.	Fuel and gas oil.	Lubricating oil.	All other products.	Total products.	Refinery loss.
Appalachian fields:		*Barrels.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*	*Per ct.*
Appalachian	3	301,328	34.6	18.6	26.9	12.3	4.6	97.1	2.9
Pennsylvania and West Virginia	23	5,700,847	27.1	23.6	18.3	22.5	3.0	94.3	5.5
Pennsylvania and Kentucky	2	307,324	17.7	12.4	16.4	25.5	17.1	89.1	10.9
Kentucky	4	662,033	32.9	13.9	46.5	.....	.....	93.3	4.7
Total	32	7,432,120	27.5	23.3	17.5	20.0	6.3	94.4	5.6
Central West:									
Ohio and Illinois	4	1,704,811	19.9	14.6	37.4	11.0	10.9	93.8	6.2
Mid-Continent fields:									
Light-products plants—									
Kansas-Oklahoma	31	15,026,622	22.5	14.7	30.0	.....	.1	97.3	2.7
Healdton, Okla.	3	4,319,845	16.1	22.4	56.9	.....	1.7	97.1	2.9
North Texas	13	4,034,852	32.7	13.5	49.6	.....	.9	96.7	3.3
North Louisiana	3	866,896	20.8	27.6	46.1	.....	.....	94.5	5.5
Total	32	24,248,215	23.2	16.3	52.1	.....	.5	97.1	2.9
Lubricating plants	11	6,894,889	23.4	17.2	46.8	4.6	2.9	94.8	5.2
Pressure stills	3	30,494,851	46.0	15.6	15.4	8.1	8.1	92.4	7.6
Total	66	60,647,967	36.7	16.2	33.3	3.5	4.9	94.6	5.4
Wyoming fields:									
Light-products plants	4	11,487,491	36.9	10.9	50.4	.....	.1	95.7	4.3

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REPORT

OF THE

U.S. FEDERAL TRADE COMMISSION

ON THE

Pacific Coast Petroleum Industry

PART II

PRICES AND COMPETITIVE CONDITIONS

108

November 28, 1921

WASHINGTON
GOVERNMENT PRINTING OFFICE
1922

REPORT

OF THE

FEDERAL TRADE COMMISSION

ON THE

Pacific Coast Petroleum Industry

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PART II

PRICES AND COMPETITIVE CONDITIONS

FEDERAL TRADE COMMISSION.

HUSTON THOMPSON, *Chairman.*
NELSON B. GASKILL.
VICTOR MURDOCK.
JOHN F. NUGENT.
J. P. YODER, *Secretary.*

WASHINGTON
GOVERNMENT PRINTING OFFICE
1921

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LETTER OF SUBMITTAL.

FEDERAL TRADE COMMISSION,
Washington, November 28, 1921.

To the PRESIDENT OF THE SENATE.

SIR: The Federal Trade Commission submits herewith Part II of a report on the Pacific Coast Petroleum Industry, pursuant to Senate resolution 139, Sixty-sixth Congress, first session.

This part deals with prices and competitive conditions, especially in the Pacific coast region. Part I, which was submitted to the Senate on May 2, 1921, discussed production, ownership, and profits. These two parts cover the information requested in the Senate resolution directing the investigation.

The more important facts developed in this part of the report may be concisely stated as follows:

(1) Five large companies, viz, the Standard Oil Co. (California), the Union Oil Co. of California, the Associated Oil Co., the Shell Co. of California, and the General Petroleum Corporation, produce and purchase the bulk of the crude petroleum produced in California, and refine and market most of the petroleum products sold in the Pacific coast territory, which includes the States of California, Oregon, Washington, Arizona, Nevada, and a part of western Idaho. In 1919 the crude petroleum production and purchases of these companies constituted over 80 per cent of the total production in California, while they refined and marketed fully 90 per cent of the petroleum products obtained therefrom.

(2) The Standard Oil Co. is the most important factor both in the production and purchase of crude petroleum and in the sale of petroleum products. The prices announced by the Standard for the purchase of crude petroleum and for the sale of petroleum products are generally followed by the other California companies.

(3) The prices of crude petroleum declined during 1914 and the early part of 1915, and profits in the crude-petroleum producing business of California were low, but beginning in the latter part of 1915 and continuing until 1920 prices advanced rapidly, and this branch of the industry became very profitable. The prices of heavy crude petroleum, for example, increased from $0.35 per barrel in January, 1914, to $1.60 per barrel by the end of 1920.

(4) The Standard Oil Co.'s fuel-oil prices are based upon the prices named by it for the purchase of heavy crude petroleum, to which are added its transportation and handling charges. The price of fuel oil at refineries on San Francisco Bay increased from $0.80 per barrel in January, 1914, to $2 by December, 1920.

(5) The retail price of gasoline at San Francisco increased from 15.5 cents per gallon in January, 1914, to 27 cents per gallon before the end of 1920. The wholesale tank-wagon price of kerosene at San Francisco remained at 9 cents per gallon from January, 1914, to

August, 1918, after which time it advanced rapidly to 16.5 cents by the end of 1920. Kerosene price changes are influenced largely by conditions in the export market. While the increases in the prices of these refined products were not so marked as the advances in crude prices, owing chiefly to less pronounced increases in transportation, refining, and marketing costs, the refining and marketing departments of the large companies during the later years of this period, especially in 1919, made on the average much higher rates of profit on investment.

(6) From 1916 to 1920, a period of marked price advances, the wholesale prices of the large marketing companies for gasoline and engine distillate sold to garages and other resellers were practically uniform, as were also the retail prices at their own service stations.

(7) There was keen competition in the sale of gasoline in California during 1914 and part of 1915, which led the small refining and marketing companies in Los Angeles and vicinity to organize the Independent Petroleum Marketers Association. In 1916 the Union Oil Co. and the General Petroleum Co. became members of this association, and in November, 1920, the Associated Oil Co. also joined. The Standard Oil Co. and the Shell Co. were the only large California marketing companies that did not become members of this association. Since September, 1915, members of this association have agreed among themselves to maintain the prices announced by the Standard Oil Co., and in order to maintain these prices they adopted the same differentials and classifications of customers as were used by the Standard. They listed and, pursuant to agreement, refused to sell retailers who sold below the agreed price until such retailers maintained list prices. The association also prepared a list of recognized peddlers to which no new names were to be added.

(8) During the period 1915–1919 the Los Angeles district sales manager of the Standard Oil Co. was promptly informed by a member of the Independent Petroleum Marketers Association of all important understandings and agreements affecting price maintenance reached by that association, and this information was promptly forwarded to the Standard's main office, which was also advised how well these agreements were carried out, thereby placing the Standard in a better position to know when a new price advance would be followed.

(9) Since the fall of 1915 certain sales managers and local representatives of certain large marketing companies, particularly of the Standard Oil Co. and the Union Oil Co., frequently conferred, and usually arrived at an understanding, as to the differentials in the prices to be charged to individual customers and to various classes of purchasers. Presidents of the Standard Oil Co. and of the Associated Oil Co. deny that these practices were either consented to or known by the higher officials of their respective companies.

(10) The Royal Dutch-Shell combination controls about 2½ per cent of the crude petroleum output of the United States, and according to current reports is now about to acquire the Union Oil Co. (Delaware), which would increase its control to about 3 per cent of the total production of this country.[1]

[1] The Shell-Union Oil Corporation was incorporated in Delaware, February 8, 1922, to take over the properties of these two interests. The Dutch-Shell interests own 72 per cent and the Union of Delaware interests 28 per cent of the stock of the new company.

(11) The Standard Oil interests occupy the same dominant position in the petroleum industry of the United States as in California, and usually take the initiative in price changes. The companies which were separated by the dissolution decree of 1911 do not compete or invade each other's marketing territory to any important extent. Recently a revival of the policy of absorbing independent petroleum interests has been made evident by the acquisition by elements of the Standard group of a substantial control over the Humble Oil & Refining Co., the Midwest Refining Co., and the Sinclair Pipe Line Co.

Upon information that the Standard Oil Co. (California) had acquired or was acquiring an interest in the Pacific Oil Co., inquiry was made by the Commission of the Standard as to the truth of this report, to which inquiry K. R. Kingsbury, president of that company, replied in part as follows:

A material part of the production from the lands owned by Pacific Oil Company has for many years been delivered to our company under contract for use in our refineries. With the knowledge that the control of Pacific Oil Company was sought by foreign interests, which if effected would have undoubtedly resulted in the loss of this oil to us, we deemed it important to further the maintenance of an American ownership of this company. We also knew that these same foreign interests, which operate in California, were also negotiating for an interest in an important California Oil company with which they are in competition. These negotiations have since been consummated.

In view of this situation, the Standard Oil Company (California) entered upon the acquisition of a minority interest of Pacific Oil Company stock and now owns less than twenty per cent of that stock. No purchases of the stock have been made by us for some months past.

Mr. Kingsbury's statement that "control of the Pacific Oil Co. was sought by foreign interests," referred to the Royal Dutch-Shell group.

Inquiry was made of the Royal Dutch-Shell group by the Commission whether it had acquired or was acquiring any interest in the Pacific Oil Co., to which Gen. Avery D. Andrews, representative of the Royal Dutch-Shell group, replied as follows:

Replying to your telegram November twenty-first received twenty-second I am now authorized to state that the Dutch Shell interests by which I mean Royal Dutch Petroleum Company of Holland and Shell Transport and Trading Company of London and their subsidiary companies do not own and are not now acquiring Pacific Oil Company stock.

(12) This dominant position of the Standard group in the petroleum industry of the United States is due not merely to the magnitude of its various units with respect to production and capital investment, but also because of its solidarity, arising apparently from an interlocking stock ownership resting largely in the hands of a few great capitalists and its great financial resources and credit.

Respectfully,

HUSTON THOMPSON, *Chairman.*
NELSON B. GASKILL.
VICTOR MURDOCK.
JOHN F. NUGENT.

SUMMARY.

SCOPE OF PART II.

This part of the report on the Pacific Coast Petroleum Industry discusses prices, marketing methods, and competitive conditions. Part I dealt with production, ownership, and profits. These two volumes cover the information requested in Senate resolution 138, Sixty-sixth Congress, first session, which directed the Commission to make an inquiry into the various branches of the Pacific coast petroleum industry.

This part of the report presents price statistics for crude petroleum, fuel oil, gasoline, and kerosene, describes the marketing agencies by which they are distributed to the consumer, shows the importance of each of the five large oil companies in the sale of the principal petroleum products, and presents in considerable detail the conditions of competition in the sale of the different petroleum products in the domestic marketing territory.

PRODUCTION, CONSUMPTION, AND PRICES OF CRUDE PETROLEUM.

There was an overproduction of crude petroleum in California from 1910 to the end of the first quarter of 1915, while the annual consumption exceeded production in that State from 1915 to the end of 1920. Since the beginning of 1921 production has again exceeded consumption. During the period 1910 to the middle of 1915 the quantity of crude petroleum held in storage increased from about 19,700,000 barrels on January 1, 1910, to a maximum of almost 60,800,000 barrels at the end of the first quarter of 1915, after which it declined until at the end of 1920 stocks were only slightly greater than they were 11 years earlier; while during the first three quarters of 1921 the quantity held in storage increased 12,000,000 barrels. For the 11-year period 1910–1920 production and consumption were almost equal, the excess of production being only about 2,240,000 barrels. While the quantity in storage was slightly larger at the end of 1920 than it was January 1, 1910, it was only sufficient to supply the demand for 2.8 months as compared with a storage supply sufficient for 3.6 months at the beginning of 1910. During the period 1910–1920 the quarterly production and consumption fluctuated considerably, but both were much larger at the end of the period than at the beginning. Production increased 79 per cent, while consumption showed a gain of 83 per cent.

In the purchase of crude petroleum and in the sale of fuel oil and refined petroleum products the bulk of the business is handled by the following five large companies: Standard Oil Co. (California), Union Oil Co. of California, Associated Oil Co., General

Petroleum Corporation, and the Shell Co. of California. For the period 1916–1918 these five companies produced and purchased from 75 per cent to 80 per cent of the crude petroleum produced in California during those years; while during the same period the above-named five companies, together with the Southern Pacific and Santa Fe Railroads, produced and purchased from almost 89 to about 92 per cent of the California production. The remainder, which declined from slightly more than 11 per cent in 1916 to only about 8 per cent in 1918, was largely produced or purchased by the small refiners in Southern California. The California oil fields are so far removed geographically from other crude petroleum producing sections of the United States that there was no competition from refiners outside of California for this crude, while refiners in California were wholly dependent upon production within the State for their supply.

The price announced by the Standard Oil Co. for the purchase of crude petroleum at the producers' tanks in the oil fields is considered the market price, and the other large marketers name the same price. Even the Union Oil Co., which is the second largest factor in the petroleum business of the Pacific coast, names the Standard's price in its contracts as the price to be paid to the landowners from whom it purchases royalty oil, and the members of the Independent Oil Producers' Agency settle with the Union on the basis of the Standard's price.

As a rule the price of crude petroleum has increased when consumption exceeded production and has decreased when production exceeded consumption. The prices of heavy crude petroleum have sometimes advanced when light crude prices have declined and vice versa, due to the varying relations between the supply and demand for the products of these two grades. The prices of heavy crude are influenced by conditions in the fuel-oil market, while those for light crude petroleum are largely determined by the relations between the supply of light crude and the demand for refined petroleum products. The heavy crude is under 18° Baumé, while the 24° Baumé crude is a representative light crude.[1] The prices of both of these grades of crude petroleum declined very rapidly the last half of 1910 and remained very low until the latter part of 1915, after which time there was a steady advance until the end of 1920. These high prices were in effect from July 10, 1920, to May 18, 1921; on this latter date a reduction of $0.25 per barrel was made and on August 3, 1921, there was a second reduction of $0.25 per barrel on all grades. From 1914 to 1920 the prices of crude under 18° Baumé increased from $0.35 to $1.60 per barrel, or 357 per cent, and the 24° Baumé crude increased from $0.55 to $1.88 per barrel, or 242 per cent. As shown in Part I, the cost of production of crude petroleum increased greatly from 1914 to June 30, 1919,[2] but not to as great an extent as the advance in prices, consequently the profits from crude petroleum production were much larger, particularly in 1918 and the first half of 1919, than they were during 1914 and 1915. The advance in crude prices which

[1] The crude petroleum coming from different wells in the same field varies somewhat in respect to specific gravity. Tests to indicate the specific gravity are made with the use of a hydrometer, the result being stated according to the arbitrary empirical Baumé scale at 60° F. temperature. A Baumé test of 18° indicates a specific gravity of 0.9459 and of 24° a specific gravity of 0.9091; in other words, the heavier crudes have a lower number on the Baumé scale.

[2] Part I, p. 125.

began the latter part of 1915 caused an increase in the rate of earnings in the crude petroleum producing business for each succeeding year from 1915 to the end of the first half of 1919. The average rate of earnings on the net investment in the producing business was 7.6 per cent in 1914 and only 4.4 per cent in the low price year of 1915; while in 1918 the average rate had increased to 24.4 per cent and to 26.7 per cent for the first half of 1919.[2] The Commission has no information regarding the costs or earnings of the producing business since June 30, 1919; but crude prices were advanced more in 1920 than in any other year since 1914.

CONSUMPTION AND PRICE OF FUEL OIL.

A considerable part of the crude petroleum produced in California is sold directly to the fuel-oil consumers without refining, and the remainder is consumed within the State by petroleum refineries. During the period 1914–1919 the crude petroleum consumed as fuel without refining and the refinery residuum sold in the domestic market was almost all distributed in the States of Arizona, California, Nevada, Oregon, Washington, and in a small part of western Idaho, while shipments were regularly made to Alaska and Hawaii and quite large quantities exported to British Columbia, Panama, and Chile. In 1919 the quantity of fuel oil sold by the five large marketing companies was equal to almost 54 per cent of the total crude petroleum production of California for that year.

In 1919 fuel oil was largely sold under yearly contracts, but in the earlier years such contracts frequently covered a period of several years. The contracts formerly specified a price for the term of the contract, but in recent years most contracts state that settlement shall be made at the price current at place and date of delivery. The current market price is frequently defined as the price announced by the Standard Oil Co. for crude petroleum under 18° Baumé at the producers' tanks in the oil fields, plus transportation charges which are specified in the contract. During most of the period the large marketing companies have added a pipe-line charge of $0.35 per barrel, and also an additional charge for handling, to the field price of crude under 18° Baumé for delivery to San Francisco Bay refineries. As shown in Part I, Chapter VII, the cost of pipe-line transportation was generally much lower than transportation rates during the period 1914–June 30, 1919.[3]

The price of fuel oil at the refineries on San Francisco Bay decreased from $0.80 per barrel in January, 1914, to $0.60 per barrel in August, 1915; and then increased steadily to $2 per barrel in December, 1920, or an increase of 150 per cent from 1914–1920. At Seattle the price decreased from $0.95 in January, 1914, to $0.75 per barrel in August, 1915, after which time it increased to $2.25 per barrel at the end of 1920, or an increase of 137 per cent from 1914 to 1920. The smaller percentage of increase of fuel oil prices delivered at Seattle and of fuel oil prices at San Francisco Bay refineries as compared with the field price of heavy crude petroleum from 1914–1920 was due to the fact that, although the amount of increase was practi-

[2] Part I, p. 146.
[3] Part I, p. 161.

cally the same, the transportation charge either remained unchanged or was only slightly increased. On May 13, 1921, and again on August 3, 1921, the prices of both heavy crude petroleum and fuel oil were reduced $0.25 per barrel.

At times there was some fluctuation in the margin between the field price of heavy crude and the San Francisco Bay refinery and Seattle prices of fuel oil, but on the whole the price of fuel oil at these cities has corresponded quite closely with the price of the heavy grade of crude when allowance is made for transportation and handling charges. During the period of overproduction of heavy crude petroleum in California in 1914 and 1915 there was some complaint of price cutting in the sale of fuel oil among the large companies, particularly in the Seattle district. Beginning in 1916 and continuing through 1920 the announced market prices were very generally maintained.

In 1918 about 88 per cent of the fuel oil sold by the five large marketing companies was for domestic consumption and the remaining 12 per cent was exported, and in 1919 almost 89 per cent of the quantity sold was in the domestic market and the remaining 11 per cent exported.

In 1919 the Standard Oil Co. and the Union Oil Co. together sold 50 per cent of the total quantity of fuel oil marketed in the domestic market by the five large companies. The Standard's proportion of the total was 27 per cent and the Union's 23 per cent. The Associated Oil Co. furnished 22 per cent of that quantity, the General Petroleum Corporation 19 per cent, and the Shell Co. 9 per cent. The Union Oil Co. was the largest exporter of fuel oil throughout the period 1914–1919, the Standard Oil Co. was the second largest factor in the export market, while export sales of the other three large companies were almost negligible. The Union Oil Co.'s proportion of the total quantity exported during the period 1914–1919 varied from 54 to 71 per cent, while the Standard's percentage varied from 25 to 45 per cent.

DISTRIBUTION OF REFINED PETROLEUM PRODUCTS.

The domestic Pacific coast marketing territory for gasoline, kerosene, and other refined petroleum products constitutes a strictly contiguous geographic unit, which in all but one instance is bounded by State lines. This marketing area includes the States of Arizona, California, Nevada, Oregon, Washington, and a small section of western Idaho. This is the same territory as that in which the Standard Oil Co. (California) distributed its products when it was a subsidiary of the Standard Oil Co. (New Jersey) prior to the dissolution of the latter company in 1911. Shipments are also made to Alaska and our Pacific insular possessions, and exports are made to British Columbia, the Orient, and the west coast of South America.

At the present time four of the five large companies, viz, the Standard Oil Co., the Union Oil Co., the Associated Oil Co., and the Shell Co., sell gasoline, engine distillate, kerosene, and other refined petroleum products at wholesale to garages, or other distributors, and at retail from their own service stations directly to the consumer. The General Petroleum Corporation sold only at wholesale, and it was not a factor in the wholesale market for refined products prior

to 1919. In Los Angeles and vicinity there are several small refiners and marketers most of whom are members of the Independent Petroleum Marketers Association that sell both at wholesale and retail. The Standard Oil Co. is the only California company that sold its products in all of the States which comprise the Pacific coast territory. The Union Oil Co. is the only other California company that sold in Arizona, and the Standard and Shell are the only large California companies that made sales in western Idaho.

During the period 1914–1919 there was a large increase in the proportion of the sales of gasoline made by the five large marketing companies directly to the consumer. The Standard Oil Co. first began selling gasoline at retail during the last quarter of 1914, and at the beginning of 1920 approximately 48 per cent of its gasoline was sold directly to the consumer. The sales of the Union Oil Co., Associated Oil Co., and the Shell Co. were largely made directly to the consumer.

During the period 1914–1919 the Standard Oil Co. sold larger quantities of refined products than any other company in the Pacific coast domestic marketing territory, and the Union Oil Co. was the second largest marketer. In 1919 the Standard sold over 60 per cent of the combined quantity of the domestic sales of gasoline sold by the five large companies, about 48 per cent of the engine distillate, over 78 per cent of the kerosene, 73 per cent of the lubricating oils, and about 39 per cent of the gas oil.

The Standard and Union together sold almost 83 per cent of the gasoline, 73 per cent of the engine distillate, about 97 per cent of the kerosene, 89.5 per cent of the lubricating oils, and 49 per cent of the gas oil sold by the five large companies. These two companies sold approximately 80 per cent of the refined products sold by the five large companies and over 70 per cent of the total sales of all companies in the Pacific coast territory.

In the domestic market the Associated Oil Co. was the third largest marketer of refined products, the Shell Co. fourth, while the sales of the General Petroleum Corporation were fifth in volume. The Associated Oil Co. sold about 12 per cent of the quantity of gasoline sold by the five large companies, over 17 per cent of the engine distillate, only about 2 per cent of the kerosene, and slightly less than 1.5 per cent of the lubricating oil, while these three companies combined sold 17 per cent of the gasoline, 27 per cent of the engine distillate, only 3 per cent of the kerosene, 10.5 per cent of the lubricating oils, and 51 per cent of the gas oil sold. The combined quantities of refined products sold by these three companies in 1919 was about 20 per cent of the total quantity marketed in the Pacific coast territory, while the five large companies sold 90 per cent of that total.

In 1919 the combined quantity of domestic sales of gasoline made by the five large marketing companies was 93.5 per cent of the total and export sales 6.5 per cent, and almost 99 per cent of the engine distillate was sold in the domestic market. The quantity of kerosene exported was slightly less than 74 per cent of the total and only a little more than 26 per cent was sold in the domestic market; for lubricating oils over 75 per cent was sold in the domestic market, about 93 per cent of the gas oil was sold to the domestic trade and less than 7 per cent was exported.

The Standard Oil Co. made the bulk of the sales for the export trade during the period 1914–1919. In 1919 it sold for export 75 per cent of the gasoline exported by the large marketers, the Associated Oil Co. furnishing 16 per cent, the Shell Co. 6 per cent, and the Union Oil Co. only 3 per cent. The Standard sold for export 68 per cent of the engine distillate exported, the Associated 25 per cent, and the Union 7 per cent. The Standard made 92 per cent of the sales of kerosene for export, the Shell Co. 7 per cent, and the Union only 1 per cent. Of the lubricating oils exported the Standard sold 76 per cent, the Shell 21 per cent, and the Union 3 per cent.

GASOLINE AND KEROSENE PRICES.

The bulk of the gasoline and kerosene produced in California is refined on San Francisco Bay and in the vicinity of Los Angeles, and shipments are made from these two points to the other parts of the Pacific coast territory. Except for a few months in the early part of 1914 the retail prices of gasoline were the same at San Francisco and Los Angeles.

The retail price of gasoline declined from 14½ cents per gallon in Los Angeles and 15½ cents in San Francisco in January, 1914, to 11 cents per gallon at both cities in July, 1915, after which there was a continuous increase to 27 cents per gallon by the end of 1920. On May 13, 1921, and again on August 3, 1921, the price of gasoline was reduced 2 cents per gallon at both cities, making the retail price 23 cents per gallon on the latter date. The price movement in other parts of the Pacific coast territory was similar to that in San Francisco and Los Angeles. Beginning in October, 1914, the Standard Oil Co. began to sell gasoline directly to the consumer from its own service stations, and it fixed the margin between its retail and wholesale price of gasoline at 2 cents per gallon.

The wholesale tank-wagon price of kerosene in San Francisco remained at 9 cents per gallon from January, 1914, to August, 1918, after which time it advanced steadily to 16½ cents per gallon by the end of 1920. In June, 1921, the price was decreased to 14½ cents. The price of kerosene has been influenced more by the export demand than by the domestic demand, because the bulk of kerosene is exported.

The five large companies sold their crude petroleum either as refined petroleum products or as fuel oil. During the period 1914–June 30, 1919, their earnings on the net investment for all branches of the petroleum business increased greatly. In 1914 the average earnings on the net investment for the three companies then operating was 8.3 per cent, and in 1915 the average rate of earnings for four companies was 7 per cent. After prices began to advance there was an increase in the average rate of earnings for the five large companies from 14.4 per cent in 1916 to 26 per cent in 1918, while for the first half of 1919 the average rate was 23.6 per cent.

COMPETITIVE CONDITIONS IN THE SALE OF REFINED PRODUCTS.

In 1914 and the first half of 1915 there was an excess of crude petroleum production over consumption in California, and large quantities were placed in storage, consequently the prices of crude declined greatly and active competition developed, particularly in

the sale of gasoline. This competition was especially keen in Los Angeles and vicinity, where there were numerous small refining and marketing companies. In the fall of 1914 the Standard Oil Co. purchased the retail marketing equipment of the National Supply Co. and began to sell refined petroleum products directly to the consumer. At that time it fixed the margin between its wholesale and retail price of gasoline at 2 cents per gallon, and this margin soon became the generally accepted differential between the retail and wholesale prices. Prior to this time the margin between the wholesale and retail price had at times been as great as 9½ cents per gallon. Since 1915 four of the five large companies in California have sold their products both at wholesale and retail.

On October 22, 1914, the Standard reduced its retail price of gasoline from 18½ to 12½ cents per gallon in San Francisco and Los Angeles, and the small refiners and marketers in Los Angeles and vicinity, apparently fearing that a price war with the Standard could only result in their own destruction, met on November 21, 1914, and formed an association, which was later incorporated as the Independent Petroleum Marketers Association of California. This association was very active in attempting to secure the membership of the large marketing companies. The Shell Co. and the Standard Oil Co. were the only large marketing companies that did not become members. The General Petroleum Co., the predecessor of the General Petroleum Corporation, became a member in April, 1916, the Union Oil Co. in September of the same year, and the Associated Oil Co. in November, 1920.

Memoranda of meetings and correspondence of the members of the Independent Petroleum Marketers Association show that the association members met frequently and discussed and agreed upon sales policies, the maintenance of price differentials, and the classification of customers. The market price was that named by the Standard Oil Co., which established and maintained fixed differentials for different classes of customers. The members of the marketers association agreed to maintain and follow the retail price and the differentials allowed by the Standard for the different classes of customers. Before uniform prices could be maintained it was necessary for the small marketing companies to make their sales policies the same as those of the Standard.

On September 22, 1915, the members of the association held a meeting at which "the well-founded rumor of the advance in the market was discussed, and in view of such advance it was deemed an opportune time to adjust all differentials to precisely the same basis throughout our list of customers," and that all market changes should "take place simultaneously." The Standard's Los Angeles representative reported to the Standard's general sales manager that on September 23, 1915, "We find that all companies have followed our price signs and several of the members of the Independent Petroleum Marketers Association have telephoned me this morning to voice their approval of this advance and indicate to me they are going to show our company now that they intend to be fair competition [competitors]." By September, 1916, the retail price of gasoline had advanced 8 cents per gallon, or 73 per cent; engine distillate 2½ cents per gallon, or 40 per cent; while there had been no change in

the wholesale price of kerosene, during the same period light crude petroleum had advanced $0.25 per barrel, or 63 per cent.

In September, 1916, there was considerable price cutting by the members of the association. Early in September the Union Oil Co. became a member. In the latter part of September a determined effort was made by the association to eliminate price cutting. At a meeting of the members of the association, held September 21, 1916, the following agreement was made:

> All marketers will immediately furnish the Secretary of the Association with the names of all retailers they now supply, who are advertising and selling gasoline at less than the retail market. Also any others they may have in mind.

A list of resellers who were selling gasoline under the retail market price of 19 cents per gallon dated September 23, 1916, was obtained from the association files. A memorandum of a meeting held October 25, 1916, states:

> In checking over the list of 18¢ signs we find that practically half of the 62 18¢ signs have been eliminated since the 1st of October. This shows a very decided improvement in the general marketing conditions.

An agreement was made at a meeting of the association held December 20, 1916, covering bids on refined oils for the city of Los Angeles for its 1917 requirements. According to a memorandum of the meeting only four companies, viz, the Standard Oil Co., the Union Oil Co., the California Oil & Asphalt Co., and the Western Oil Co., were to bid and "it was agreed all should bid 1 cent off open tank wagon market price at time and place of delivery." Three companies, viz, the Standard Oil Co., the Union Oil Co., and the Western Oil Co., submitted bids naming identical prices. These bids were rejected, and when the city asked for new bids to be submitted, January 24, 1917, there was a second agreement, and "the same firms quoted in the same manner and bids were again rejected."

There was continued price cutting by small retailers in the vicinity of Los Angeles during the early part of 1917, and strenuous efforts were put forth both by the secretary of the association and by the members thereof to maintain wholesale and retail prices named by the Standard Oil Co. Among the different plans adopted by the association members was that of issuing a list on January 19, 1917, effective for 60 days, containing the names of price cutters to whom competitors of the companies supplying the price cutters agreed not to sell any gasoline unless the price cutter displayed a sign showing the regular retail price of 20 cents per gallon.

In 1917 the sale of gasoline at less than the announced prices through coupon books became a disturbing factor, and according to the secretary of the association: "The smaller companies, not wishing to install coupon systems to meet this method of competition, have in many instances encouraged the display of cut-price signs with the usual resulting unstable condition of the market." During the greater part of 1918 the price of crude petroleum and petroleum products was stabilized by the Petroleum War Service Committee of the United States Fuel Administration.

In the spring of 1919 renewed efforts were made by members of the association to maintain uniform prices. A number of meetings

of members of the association were held during the month of May, at which agreements were made covering price differentials and classifications of customers. On May 5, 1919, a price list was issued covering gasoline, engine distillate, and kerosene, which named a price for each class of customers, and on May 8, 1919, a memorandum marked "confidential" was sent out by the association, which contained a list of "Bona fide gasoline peddlers." According to this memorandum: "Beginning immediately all customers, unless in possession of a reseller's license, buying at commercial stations, including Union Oil and Standard Oil stations, will be charged the minimum price of 19½ cents net per gallon for gasoline and 13 cents net per gallon for engine distillate." This memorandum contained the names of 80 peddlers entitled to the discount and stated that "no new peddlers will be recognized."

In the spring of 1920 there was complaint on the part of the small refiners because the price of the lighter grades of crude petroleum had been increased greatly while gasoline had only been advanced 9 cents per gallon, and there was very little complaint of price cutting. The shortage of gasoline and engine distillate in California made it easy for the small marketers to dispose of their products at the prices announced by the Standard Oil Co.

RELATION OF LARGE MARKETERS TO THE ASSOCIATION.

As already stated, the General Petroleum Co. joined the association in April, 1916, the Union Oil Co. in September, 1916, and the Associated Oil Co., the last of the large companies to become a member, joined in November, 1920. The Standard Oil Co. and the Shell Co. did not become members of the association. The Los Angeles sales manager of the Standard Oil Co., however, was kept fully informed of the important price activities of the association by a representative of a company belonging to the association, and this information was promptly forwarded to the general sales manager of the Standard. Beginning in September, 1915, the association endeavored to maintain the prices and differentials of the Standard Oil Co. Some memoranda of meetings of the association named the Standard Oil Co. and certain association members as companies which would eliminate price cutting; for example, W. L. Standard, of the Union Oil Co., in reporting a meeting of the association January 17, 1917, stated: "As long as the El Monte Road Five Mile House is now displaying a 20¢ sign, the Wilshire, Standard Oil Co., and Union will start in to clean up the 20¢ signs in Alhambra, South Pasadena, and Pasadena. This situation ought to be cleaned up very nicely within the next few days"; and again on May 8, 1919, a memorandum of an agreement of the association members covering the price of gasoline to commercial users, stated that all customers unless in possession of a peddler's license "including the Union Oil and Standard Oil stations, will be charged the minimum prices." On two occasions the members of the association agreed upon the prices to be submitted in bids for the 1917 petroleum requirements of the city of Los Angeles, and memoranda of each agreement named the Standard Oil Co. as one of the companies which would bid the agreed price. On the date of the first agreement, December 20, 1916, the Los Angeles district sales manager of the Standard, wired the

Standard's general sales manager at San Francisco recommending the same price which the association members agreed to bid. On the same day, December 20, 1916, the general sales manager of the Standard authorized the Los Angeles district sales manager to bid the price which he had recommended.

In the spring of 1920 the small refining and marketing companies were anxious to have the price of gasoline increased. According to H. M. Storey, vice president of the Standard Oil Co., prior to the advance in gasoline prices initiated by the Standard on March 17, 1920, "the possibility of other refiners taking the initiative in price increase had been considered by officers of the Standard, and that it was their conclusion that such an advance by others was possible or prospective, and that the base price of gasoline might well be set at 25 cents in these circumstances." On April 10, 1920, H. S. Botsford, manager of the Puente Oil Co., who was at that time also president of the association, wired C. H. Schlacks, president of the Union Oil Co. (Del.), which controls the Puente Oil Co., as follows:

Had a talk Monday S. O. Co. California San Francisco as good as recommended Independents increase price gasoline. Friday local representative definitely asks if it is not possible Independents take some action. Can see no objection making price 25, now 23.5. Please advise.

Mr. Schlacks objected to the Puente Oil Co. being a party to any price understanding, and there was no advance until the latter part of July, when the Union Oil Co. of California took the lead.

COMPETITIVE CONDITIONS AMONG LARGE COMPANIES.

Throughout the period 1914–1920 changes in the market prices of refined petroleum products were either made simultaneously or practically simultaneously by all of the large marketing companies, and the announced prices were always identical. The volume of sales of the Standard Oil Co. for all petroleum products, except fuel oil, were so much larger than the quantity sold by any other company that the Standard was recognized even by the other large companies as the leader in the establishment of market prices. As already stated, the Standard began selling at retail in October, 1914. Prior to that time there had been no uniform differential between the wholesale and retail prices for the different petroleum products. As soon as the Standard began selling at retail it fixed the differential between its wholesale and retail prices of gasoline at 2 cents per gallon. Some of the other large marketing companies had contracts at that time with resellers naming a larger differential, for example, the Associated Oil Co. and the Shell Co. were quoting a differential of 5 cents per gallon in Oakland in the fall of 1915.

In 1915 the large companies began to harmonize their marketing policies and to establish uniform differentials. Early in December, 1915, the Union Oil Co. issued instructions to its district agents which, among other things, named the differentials between the wholesale and the retail prices for gasoline and engine distillate, and designated the classes of consumers entitled to differentials from the retail price. At the same time, the Los Angeles district sales manager of the Standard summarized the differentials and classifications which had been developed by the Standard, and distributed them to

the Standard's local agents throughout Southern California. These classifications and differentials of the two companies were made practically identical at this time. The Union Oil Co. understood that the Standard Oil Co. would follow the same classification of customers and give the same differentials as is shown by the following excerpt from a letter dated December 15, 1915, from the manager of stations of the Union Oil Co. to an agent of the same company:

We can figure no other way for us to determine whether our competitors are going to play fair with us than to be fair ourselves and follow out Mr. Ralph's Bulletin No. 120. Our competitors claim this is what they are going to do, and we would suggest that you see Mr. Woodward and get as close to him as possible and see if we both cannot work along lines which are fully understood between us, as we believe and know, that we will both get as much business at the end of the year by doing business in this way as to try to use the cutting process, which has never been successful in any line of business, and we know that you appreciate all that we are writing in this letter and we are giving you every assurance that we possibly can that our competitors advise us they are trying to be fair, and we are giving them the credit of stating the truth.

The Mr. Woodward mentioned was a local agent of the Standard Oil Co.

The differentials for gasoline and engine distillate which were named in the bulletins sent out by local agents of the Standard Oil Co. and the Union Oil Co. in December, 1915, were soon accepted and generally followed by the Petroleum Marketers Association. As a general rule the same differentials were allowed from the retail price by all of the large companies from early in 1916 to the end of 1920. Throughout the period 1916–1920 there was a very high degree of uniformity in the wholesale prices of the large companies in sales to established garages and service stations or at retail from their own service stations; but there were frequent complaints regarding the differentials allowed certain large consumers. While the large companies named the same differentials and classified the trade alike, there were some complaints regarding the differentials to be allowed certain consumers in different sections of the Pacific coast territory. The desire of the Union Oil Co. to have its local representatives in complete accord with the Standard Oil Co. is shown by the following instructions given to its district sales manager at San Diego, Calif., by the manager of stations on October 1, 1915:

Replying to your 824-F, of September 20th, in reference to your sub-agent at El Cajon selling R. F. Robinson, agent for the Case Automobile & Tractor Company 500 gallons of gasoline at 2¢ off the market, this was absolutely in line according to your instructions under date of August 21st.

However, you appreciate that it is far from our wish to bring about a gasoline war. In view of this would you please get in close touch with Mr. Jeffries and ascertain fully just what this company is doing with trade of this kind and we would suggest that you follow the same methods in regard to marketing so as to not cause any friction. We trust you can do this without losing any business.

The Mr. Jeffries mentioned above was the Standard Oil Co. representative at San Diego, Calif., at that time.

During the last half of 1915 representatives of the Standard Oil Co. and the Union Oil Co. had a number of conferences regarding the prices of petroleum products at Kingman, Ariz. Apparently the Union Oil Co. first sold under the regular price, and later the

Standard Oil Co. reduced its margin between the El Segundo refinery price and the tank-wagon price at Kingman. The following excerpt from a letter dated November 2, 1915, from J. H. Hull, of the Union Oil Co., to C. W. Ralph, manager of stations of the same company, shows the attitude of the Union and its understanding of the intentions of the Standard Oil Co.'s agent regarding the maintenance of the regular schedule prices:

I then met Mr. Harlan Traveling Salesman for S. O. Co. and had a long talk with him and he was very agreeable to everything suggested and assured me that prices would be maintained and sold at schedule, and should he find anything which we were doing which did not look business-like to him, he would be very glad to take it up with us and should his company do anything that looked unfair to us, he would be very glad to do everything possible to correct it, if his attention was called to the matter.

Finally in December, 1915, the Union Oil Co. reduced its prices in harmony with those of the Standard.

Early in 1916 the question of classification of water companies in the Imperial Valley of California, i. e., companies furnishing water for irrigation purposes, led to a number of conferences between representatives of the Standard Oil Co. and the Union Oil Co. The manager of stations of the Union stated in a letter to the Union agent at El Centro, Calif., on May 27, 1916, that he had "discussed the situation from every angle with our competitor and we have agreed that all water companies in the Imperial Valley are entitled to only 1 cent on gasoline and ½ cent off on distillate, as they are in the same class as municipalities."

The territory in which a given price was to apply was determined by the large companies following an identical dividing line between two different towns. The Standard Oil Co. and Union Oil Co. defined their boundary lines very carefully as early as 1915. On February 21, 1916, South Pasadena, Calif., was placed in the Pasadena territory, as shown by the following extract from the letter of the manager of stations of the Union Oil Co. to its sales manager at Pasadena:

The dividing line effective February 21st, between Pasadena and Los Angeles territory will be the Arroyo on the West, Moffatt Str. on the South, and Meridian Str. on the East. This latter Str. is one block from Huntington Drive and joins into Paloma and Parke Str. From the map, Parke Str. comes down to Huntington Drive and a line from Parke Str. across Huntington Drive is what is now the Northern City limits of Los Angeles, including Bairdstown. The above would be the dividing line between Los Angeles prices and Pasadena prices. This information was taken from a map outlined by our competitor.

The competitor referred to was the Standard Oil Co. Similar uniformity existed at other places.

From the documentary and other evidence obtained by the Commission it appears that neither the general sales managers of the Standard Oil Co. nor of the Union Oil Co. were always cognizant of the cooperative activities of their local agents, nor of the district managers, in case of the Standard, and of the manager of stations in case of the Union. However, the cooperative activities of these representatives evidently were quite largely responsible for the high degree of price uniformity which existed throughout the Pacific coast territory from 1916–1920.

The presidents of the Standard Oil Co. and of the Associated Oil Co. deny that the practices herein described were either consented to or known by higher officials of their respective companies.

EFFECT OF RESTRICTION OF COMPETITION.

The resolution directing this inquiry requested information regarding the effect which any combinations "had upon the market price of fuel oil, gasoline, and other petroleum products, especially on the Pacific coast and especially with reference to the price charged to the ultimate consumer."

The Standard Oil Co., as already stated, began to sell directly to the consumer in the fall of 1914 and fixed its differential between the wholesale and retail price of gasoline at 2 cents per gallon. Prior to this there had been no generally established differential between the wholesale and retail prices, but it had generally been higher.

There were numerous small refiners in the vicinity of San Francisco and Los Angeles, and in 1914 and during most of 1915 competition, particularly in the sale of gasoline, was very keen. At least four small refiners were forced out of business by this competition. In addition to the competition of the small refiners, the Associated Oil Co. and the Shell Co. were just becoming factors in the gasoline market. By the end of 1915 the few small refining and marketing companies in the vicinity of San Francisco had gone out of business, as well as two in the vicinity of Los Angeles. The remaining small refining and marketing companies in the vicinity of Los Angeles, through the Independent Petroleum Marketers Association, agreed to maintain the prices announced by the Standard Oil Co., which was the largest marketing company on the Pacific coast. The Union Oil Co., the second largest marketing company, was maintaining substantially the same prices. This apparently made it much easier for the Standard Oil Co., which had always been recognized as the leader in establishing prices throughout the Pacific coast territory, to initiate price advances. The first price advance in 1915 was made the day following the understanding of the members of the Independent Petroleum Marketers Association that they would maintain the prices announced by the Standard. Throughout the remainder of the period the prices of all petroleum products were materially advanced. Although at times there was considerable price cutting in the vicinity of Los Angeles by the small companies, and occasionally a special price was given to a large consumer in other parts of the Pacific coast territory by one of the large companies, as a rule the price advances announced by the Standard Oil Co. were maintained.

ACQUISITION OF PACIFIC OIL COMPANY STOCK.

The Standard Oil Co. (California) recently acquired, prior to November 25, 1921, something less than 20 per cent of the stock of the Pacific Oil Co., which was organized in December, 1920, to take over the extensive oil properties of the Southern Pacific Railway.

Upon information that the Standard Oil Co. (California) had acquired or was acquiring an interest in the Pacific Oil Co. inquiry was made by the Commission of the Standard as to the truth of this report, to which inquiry K. R. Kingsbury, president of that company, replied in part as follows:

A material part of the production from the lands owned by the Pacific Oil Company has for many years been delivered to our company under contract for use in our refineries. With the knowledge that the control of Pacific Oil Com-

pany was sought by foreign interests, which if effected would have undoubtedly resulted in the loss of this oil to us, we deemed it important to further the maintenance of an American ownership of this company. We also knew that these same foreign interests, which operate in California, were also negotiating for an interest in an important California oil company with which they are in competition. These negotiations have since been consummated.

In view of this situation, the Standard Oil Company (California) entered upon the acquisition of a minority interest of Pacific Oil Company stock and now owns less than twenty per cent of that stock. No purchases of the stock have been made by us for some months past.

Mr. Kingsbury's statement that "control of the Pacific Oil Co. was sought by foreign interests," referred to the Royal Dutch-Shell group.

Inquiry was made of the Royal Dutch-Shell group by the Commission whether it had acquired or was acquiring any interest in the Pacific Oil Co., to which Gen. Avery D. Andrews, representative of the Royal Dutch-Shell group, replied under date of November 28, 1921, as follows:

Replying to your telegram November twenty-first received twenty-second I am now authorized to state that the Dutch-Shell interests by which I mean Royal Dutch Petroleum Company of Holland and Shell Transport and Trading Company of London and their subsidiary companies do not own and are not now acquiring Pacific Oil Company stock.

The acquisition by the Standard of a 20 per cent interest in the Pacific Oil Co. is significant with respect to the control of the Pacific coast petroleum industry and competitive conditions therein. The Pacific Oil Co. owns slightly more than 50 per cent of the stock of the Associated Oil Co., which is an important factor in all branches of the petroleum industry of the Pacific coast. In 1919 the combined production of the Associated-Pacific Oil Co. interests in California was 18,444,000 barrels of crude petroleum, or 18.2 per cent of that for the entire State. During the same year, 1919, the Standard Oil Co. produced 25,484,084 barrels, or about 25.2 per cent of the State total. The combined production of these two interests in 1919 was over 43 per cent of the total crude petroleum output of California; while present indications are that their 1921 production will exceed 50 per cent of the total crude output of California.

COMPETITIVE CONDITIONS IN THE UNITED STATES.

The production, refining, and marketing of crude petroleum and refined petroleum products in the entire country is controlled by a comparatively few companies and their subsidiaries. In 1919, 32 companies produced almost 60 per cent of the total production of crude petroleum, 39 companies refined 85 per cent of the crude, while about 25 marketing companies sold the bulk of the petroleum products marketed. The Royal Dutch-Shell group, one of the largest in the world, is the most important foreign factor in the domestic petroleum industry. They have producing and refining properties in the California and the Mid-Continent oil fields, and are now attempting to secure additional producing and refining interests in this country. In 1920 the Royal Dutch-Shell interests produced about 10 per cent of the world's total production of crude petroleum and about 25 per cent of that produced outside of the United States.

The members of the Standard Oil group are the dominating factors in the petroleum business of practically every section of the United States. In 1919 companies now controlled by the Standard controlled 28¼ per cent of the total crude petroleum production of the entire country, they operated about 68 per cent of the pipe lines, refined almost 44 per cent of the total quantity of crude refined, while Standard marketing companies were the dominating factors in both the domestic and export trade of the entire country. As in California, Standard crude petroleum purchasing and Standard marketing companies usually take the lead in announcing price changes, while others follow.

Recently members of the Standard group have revived their former policy of expansion through the acquisition of independent interests. The more important recent acquisitions include the Humble Oil & Refining Co., with large petroleum interests in Texas; the Midwest Refining Co., which gives Standard companies practically complete control of the rapidly expanding Wyoming petroleum industry; a half interest in the Sinclair Pipe Line Co., and a half interest in the recently organized Sinclair Crude Oil Purchasing Co. These Sinclair interests are important factors in the Mid-Continent field.

The dominant position of the Standard group in the petroleum industry of the United States is due not merely to the magnitude of its various units with respect to production and capital investment but also because of its solidarity, arising apparently from an interlocking stock ownership, resting largely in the hands of a few great capitalists, and its great financial resources and credit.

PACIFIC COAST PETROLEUM INDUSTRY.[1]

CHAPTER I.

SCOPE OF REPORT.

Section 1. Scope of Part II.

This part discusses the methods of marketing crude petroleum and petroleum products; the distribution of fuel oil and refined products in the domestic and export markets by the large marketers; the prices of crude petroleum, fuel oil, and the principal refined products; and competitive conditions, including evidence of agreement on prices among marketers in the Pacific coast territory. Part I of this report discussed the sources of supply of crude petroleum for the United States and for the Pacific coast territory, the organization, affiliations, investments, and earnings of the large integrated companies which dominate the petroleum business of the Pacific coast; the cost of producing and earnings for crude petroleum producers in California; the costs and earnings for the refining and pipe-line departments of the large integrated companies; and gave a general survey of the profitableness of the producing and refining departments of the petroleum business for the entire country during 1919.

Section 2. The Pacific coast territory.

The marketing territory in which the principal petroleum products produced in California are distributed includes the States of Arizona, California, Nevada, Oregon, Washington, and a small part of western Idaho; however, California lubricating oils are distributed over a much wider area, while eastern lubricants are regularly sold in competition with the California product throughout the Pacific coast territory. The cost of transportation is so great from other oil fields that under normal price conditions even the refiners in the Mid-continent and Rocky Mountain regions can not successfully compete with California refiners, except with respect to lubricants, in any part of this territory; but on several occasions when there has been a wide difference in prices, shipments have been made from California to the Rocky Mountain and Mid-continent marketing territories, or from these sections into the Pacific coast territory. During recent years the California Petroleum Exchange (see p. 109) has occasionally shipped gasoline and engine distillate from southern California into New Mexico, Utah, and Montana, and in some cases as far east as West Virginia, in order to prevent an accumulation of

[1] Subsequent to the presentation of this report to the Senate in manuscript, a few minor changes in text were made and some later statistics incorporated in the copy submitted to the printer.

such products in southern California. In addition to supplying the home territory, shipments are regularly made to Alaska, Hawaii, and the Philippines, while exports are made principally to British Columbia, Panama, Chile, and the Orient.

While petroleum products, such as gasoline, kerosene, and fuel oil, are regularly distributed in the States named above, the Standard Oil Co. is the only California company that sells throughout this entire territory. The Standard Oil Co. and the Union Oil Co. are the only large companies that made sales of petroleum products in Arizona during the period 1914–June 30, 1919, while the Standard and the Shell companies are the only ones that sold in western Idaho. The territory designated as the domestic territory of the Pacific coast petroleum industry includes the area in which the Standard Oil Co. (California) confined its sales when it was a subsidiary of the Standard Oil Co. (N. J.) prior to the dissolution in 1911. This territory is outlined on the map opposite page 130. The areas in which the various members of the Standard Oil group sell gasoline and kerosene at retail and by tank wagon are shown on this map, and it also shows the location of the petroleum refineries owned or controlled by Standard companies. The names of the cities and towns in which the refineries are located is shown in Appendix Table 16.

Section 3. Sources of information.

The data regarding the quantities of crude petroleum and petroleum products purchased and sold by the five large companies, the information concerning their methods of marketing fuel oil and refined petroleum products, the market prices for crude petroleum, fuel oil, and the principal refined products, and the areas in which these products are sold, were obtained directly from the records of the large marketing organizations by examiners of the Commission, or were furnished by the companies. The information concerning the territory in which the members of the Standard Oil group sell gasoline and kerosene at retail and by tank wagon was secured by corresponding with the different companies. The facts regarding competitive conditions and price agreements were almost all secured from the files of the marketing companies, the records of associations and interviews.

CHAPTER II.

MARKETING CRUDE PETROLEUM AND FUEL OIL.

Section 1. Marketing crude petroleum.

Part of the crude petroleum produced in California is sold for fuel-oil purposes without refining, while the remainder is consumed by petroleum refiners. The crude sold for fuel purposes is distributed throughout the same territory in which refined products are sold, while that used by refineries is refined within the State. The crude petroleum producing districts of California are so far removed geographically from other crude-producing sections of the United States that there is no competition from refiners outside of California for this crude petroleum, while refiners in California have been wholly dependent upon production within the State for their supplies. Consequently there may be an overproduction or shortage of crude petroleum in California at a time when conditions are just the reverse east of the Rocky Mountains.

The crude petroleum not produced by the large producers, viz, the Standard Oil Co. (California), the Union Oil Co. of California, the Associated Oil Co., the Shell Co. of California, and the General Petroleum Corporation is largely purchased by them and is usually sold at the producers' tanks in the oil fields to the purchasing company.

When a producer first sells crude petroleum, or when new wells are brought in, the pipe-line company transporting the crude connects the producer's tanks with its gathering lines. In practice many small producers are limited to one purchaser because only one pipe-line system is available. When a producer has a tank full of crude petroleum ready to deliver to the pipe-line company he notifies the company's gauger, who, after gauging the contents of the tank, opens the valve that permits the crude to flow, or to be pumped, from the tank into the gathering line. Later, after the tank has been emptied down to a certain point, the valve is closed, thereby "cutting out" the tank from the gathering line; then the tank is gauged again and a ticket is issued showing the height of the crude in the tank at each of the gauges. This ticket serves also as a receipt for the producer. The quantity of crude petroleum taken is determined by reference to tank tables, carefully computed from actual measurements, which show the cubical contents of any tank for every difference in height in graduations of a quarter of an inch.

The crude run into gathering lines carries more or less sediment. Usually the purchasing company makes a deduction of 3 per cent from the total quantity to cover any water or sediment in the crude run from the producer's tanks. Particularly, for purchases of large quantities, and where the crude petroleum is known to contain a very large proportion of water and sediment, additional deductions are made based on centrifugal tests. As crude petroleum expands on being heated, adjustments are made to cover changes in quantity due to differences in temperature.

Under the system of purchase and sale of crude petroleum in California, practically all crude is purchased on contract. The fol-

lowing stipulations, which are usually contained in a crude petroleum contract, deserve special mention: The life of the contract runs from one year and upward; the quantities to be delivered usually cover the total output produced in a specified area, subject to a maximum limit; the deliveries are to be made from the tankage of the producer into the pipe line of the purchaser, which pipe line is connected with the producer's tanks. If no definite quantity of crude petroleum is stipulated for delivery, a special clause is usually inserted in the contract obligating the producer to operate his property in good faith and with reasonable diligence. The character of the crude is determined from samples which are taken from time to time. It is usually provided that the tests are to be made in the presence of the producer or his representative. As a rule, since 1914, the price has not been fixed in the contract, but is stipulated to be the market price which obtains at the time the crude petroleum is run into the pipe line. Very frequently it is specified that the price which the purchaser offers to other producers, that is, the market price, is to be applicable to the crude bought under the contract. This latter provision constitutes a regular feature of the crude petroleum purchase contracts that the Standard Oil Co. (California) enters into with the producers.

Section 2. Marketing organizations.

IMPORTANCE OF LARGE COMPANIES.—The bulk of the crude petroleum sold by producers to marketing companies during the period 1914–June 30, 1919, was purchased by the Associated Oil Co., the General Petroleum Corporation, the Shell Co. of California, the Standard Oil Co. (California), and the Union Oil Co. of California. In the case of the Associated Oil Co., the Shell Co., and the Union Oil Co., the purchase of crude petroleum is under jurisdiction of the executive departments; the producing department makes such purchases for the General Petroleum Corporation, while the pipe-line department of the Standard Oil Co. handles crude purchases. As already shown in Part I of this report, these five companies produced almost 53 per cent of the total production of the State in 1919, and when their purchases are taken into consideration they handled most of the crude petroleum produced in California. The production of these companies, their purchases and the proportion of the State's total production handled by them are shown in the following table:

TABLE 1.—*Combined production and purchases of crude petroleum by five large companies and quantity available for others, 1916–1918.*

Year.	California production.	Five large companies.		Railroads.		Remaining production.	
		Production and purchases.[1]	Proportion of State total.	Production and purchases.[2]	Proportion of State total.	Quantity.	Proportion of State total.
	Barrels.	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.
1916	91,322,302	69,055,434	75.6	12,545,434	13.7	10,271,434	11.2
1917	97,267,332	74,462,713	76.6	13,270,327	13.7	9,534,320	9.7
1918	101,667,970	81,443,010	80.1	13,914,347	13.3	6,130,797	6.1

[1] Intercompany purchases eliminated.

[2] The Southern Pacific figures include only production; the Santa Fe figures include only purchases from its two subsidiary companies.

The combined production and purchases of the five large companies increased from about 75 per cent of the State's total production in 1916 to 80 per cent in 1918. The Southern Pacific Co. and Santa Fe Railway produced or purchased for their own consumption about 14 per cent of the total production in 1916 and 1917 and about 12 per cent in 1918. This left only a little more than 11 per cent for the small refiners and other purchasers in 1916 and about 8 per cent in 1918.

COOPERATIVE SELLING AGENCIES.—The Independent Oil Producers' Agency, a cooperative organization in which membership is confined to producers, was organized in 1904 by producers in the Kern River field. Each member is required to own stock in the organization and is limited to one share. The members obligate themselves to deliver their entire output of crude petroleum for a term of years to the organization, which in turn agrees to sell the crude at the highest market price. Prior to the organization of the agency the price of crude petroleum in the Kern River field was 10 to 11 cents per barrel and there were inadequate transportation facilities, both in the form of tank cars and pipe lines. Upon its formation the agency succeeded in selling the crude petroleum controlled by it to some marketing companies at 16 cents a barrel. It was the policy of this organization to sell its crude on contracts that would run for a period of two years or more. For some time it considered building its own pipe line, but was not successful in raising the necessary capital.

Later a smaller cooperative selling organization, the Coalinga Oil Producers' Agency, was formed among the small producers in the Coalinga field. The producing properties of the Coalinga Oil Producers' Agency were located in the Coalinga field, and those of the Independent Oil Producers' Agency were distributed in the McKittrick, Midway, and Kern River fields. In 1909 arrangements were made by the Independent Oil Producers' Agency and the Coalinga Oil Producers' Agency with the Union Oil Co., whereby the latter was to build a pipe line from their respective oil fields to Port Harford, Calif. The members agreed that certain quantities were to be shipped through this pipe line, and the Union Oil Co. in turn undertook to transport the crude at a fixed price. In the spring of 1910 the two agencies combined into one organization under the name of the Independent Oil Producers' Agency.

Section 3. The Agency-Union contracts.

Soon after transportation arrangements were effected another contract was entered into between the Independent Oil Producers' Agency and the Coalinga Oil Producers' Agency with the Union Oil Co., whereby the Union was made the exclusive sales agent for all the crude petroleum marketed excepting that used for the manufacture of asphaltum. This contract was dated June 24, 1909, and was to take effect on February 1, 1910, and to terminate on February 1, 1920. The execution of this contract was made contingent upon the completion of the transportation arrangements entered into previously, as shown by a clause in the sales agreement that reads as follows:

In case for any reason, the work of constructing said pipe line system from Port Harford to said Midway, McKittrick, Kern River and Coalinga Oil Fields is not commenced on or before September 1, 1909, and thereafter prosecuted with diligence to completion, this agreement shall be cancelled and shall absolutely cease and terminate.

The pipe line in question was constructed and the sales contract was consummated, taking effect on February 1, 1910.

On June 1, 1917, a new marketing agreement was entered into between the Union Oil Co. and the Agency. This contract provided that it was to become effective immediately upon the termination of the first contract which was to expire on February 1, 1920, and was to run for a period of 5 years, terminating December 31, 1924. Under this contract the Agency agrees to use its best endeavors to maintain the aggregate daily production from the lands operated by its members to the maximum producing capacity and to take all necessary steps for development work, pumping, and drilling on the oil lands owned or controlled by its members. The contract also specified the class of crude covered by the agreement, which brings under its provisions all crude which is not of greater value for refining purposes than for fuel, road purposes, and other uses, and it includes the fuel residuum of refineries but does not cover that used in the manufacture of asphaltum. The Union Oil Co. undertakes to sell all the crude petroleum thus delivered to it at the most advantageous price, such sales to be made either on contract for deliveries at various times or for immediate deliveries as deemed most advantageous at the time. All crude petroleum not delivered or sold is to be held in storage tanks of the Union Oil Co. subject to field storage charges. As compensation for this service and for guaranteeing payment the Union Oil Co. is to be paid 10 per cent of the net amount received for all crude petroleum sold during any given month. The net amount is determined by deducting from the gross proceeds all amounts due for (1) transportation of crude petroleum and (2) the cost of storage, including insurance. The net amounts minus the 10 per cent commission are then turned over to the Agency and prorated between its individual members.

A supplemental agreement was entered into between the Agency and the Union Oil Co. about the same time as the new marketing agreement was formed, whereby the members of the Agency were given the option of selecting on the 1st day of January and on the 1st day of July of each year, for the subsequent six months, the current market price as a base of settlement with the Union Oil Co. instead of the net proceeds as defined in the new marketing contract. The members expressing their consent to the exercise of this option are designated as "consenting producers." In brief, the supplemental agreement provides that in case the market price in any given month shall be found to be greater than the producers' net proceeds, then the Union Oil Co. "shall pay to the Agency a lump sum for the benefit of the consenting producers (to the exclusion of all other Agency members) equal to the amount of the difference between the producers' net proceeds and such market price for the crude petroleum sold during the month for which settlement is being made and for which the consenting producers are entitled to receive returns." On the other hand, should the market price be found to be less than the producers' net proceeds, then the Agency

undertakes to pay to the Union Oil Co. a lump sum equal to the amount of the difference between the producers' net proceeds and the market price for the oil sold during the month.

The following definition of market price is given in the supplemental agreement:

> By the term "Market Price," as herein used is meant the fair Market Price which shall be freely and currently paid, and generally offered to be paid by the large Oil Marketing Concerns, for fuel oil at the wells, to the Oil Producers in the San Joaquin Valley Oil Fields, for fuel oil of like quality and character as that covered by this contract, and in large quantities. Said term "Market Price" is not, however, intended to mean, or to be established by the price paid by consumers purchasing fuel oil in such oil fields.

Section 4. Membership and sales of Agency.

During the period 1914–1919 the members of the Independent Oil Producers' Agency sold from 7,125,000 to 8,015,000 barrels of crude petroleum annually through the Union Oil Co. under the contracts described above. The number of producers holding membership in the Agency, the quantity of crude petroleum sold, and the average price paid to the members by the Agency under its contract with the Union Oil Co. is shown in the following table:

TABLE 2.—*Number of members, quantity of crude petroleum sold, average annual price paid members by the Independent Oil Producers' Association, per barrel of 42 gallons, 1914–1919.*

Year.	Number of members.	Barrels sold.	Average price paid members per barrel.
1914	145	8,015,126.15	$0.4[illegible]
1915	134	7,[illegible]00,[illegible].37	.[illegible]
1916	132	8,[illegible]00,[illegible].61	.[illegible]
1917	131	7,[illegible]00,[illegible].61	.[illegible]
1918	131	7,125,141.29	1.[illegible]
1919	121	7,125,[illegible]00.61	1.[illegible]

From 1914 to 1916, inclusive, the price received by the Agency members was the sale price less a 10 per cent sales commission to the Union Oil Co. and a small deduction to defray the Agency expenses. As already stated, a new contract was entered into, effective January 1, 1917, which allowed the members to elect, on the 1st of January and July of each year for the subsequent six months, the current market price for crude petroleum at the wells as a basis of settlement instead of the net proceeds as defined in the new contract (see p. 22). In 1914 and 1915 there was an overproduction of heavy crude petroleum in California and prices were low, while beginning with 1916 demand exceeded current production and prices advanced rapidly. During 1916 and 1917 the average annual receipts per barrel were lower than the annual average price of heavy crude petroleum on account of deliveries on contracts made when prices were low.

Section 5. Crude petroleum and fuel oil exchanges.

NATURE OF EXCHANGES.—The practice of exchanging crude petroleum of the same or different qualities is very prevalent among the large marketing and producing companies in California. This custom is peculiar to the petroleum industry of that section. There are three economic reasons for the development of this practice, viz,

(1) the completeness of the integration of the producing, transporting, refining, and marketing departments of the large companies in California; (2) to facilitate handling and to economize in transportation expense; (3) the production in California of both heavy crude petroleum which can be used directly for fuel purposes and of light crude which must be refined. The integrated companies, which are engaged in producing, transporting, and refining crude petroleum, exchange large quantities with each other and with large crude producers that are also consumers of fuel oil. As an illustration of the saving in transportation expense, the Standard Oil Co. has delivered crude produced in southern California to the General Petroleum Corporation for use in the latter's refinery at Vernon, in the vicinity of Los Angeles, and received from the General crude petroleum produced in the San Joaquin Valley fields, which are reached by the former company's northern pipe lines running to the Standard refinery at Richmond. Exchanges on account of economy in transportation are important because the producing activities of the large companies extend to all of the oil fields, and in some cases part of a given company's crude production is not contiguous to its marketing center or refineries, and furthermore, occasionally the pipe lines of a company do not furnish a convenient means of transportation for certain crude petroleum, while this crude could be handled advantageously by another company. Regarding exchanges on account of the qualities of crude petroleum, the Standard Oil Co. has had an arrangement with the Southern Pacific Co.[1] whereby it delivered fuel oil residuum in exchange for light crude petroleum produced by the latter company. The practice of exchange virtually partakes of the character of a purchase transaction, in that one company acquires ownership of certain quantities of crude petroleum at a stipulated price. The feature that distinguishes this transaction from a regular purchase is that settlement is not to be made in money, but in kind.

IMPORTANCE OF EXCHANGES.—The quantity of crude petroleum exchanged between the large companies in California has been large during recent years. As the demand for lighter grades of crude petroleum has increased and the market price for such grades has shown a greater increase than for the heavier grades, the practice of exchanging refinery residuum for the light crudes and even for comparatively heavy crudes has become more important. The following table indicates the importance of exchange transactions:

TABLE 3.—Quantity of crude petroleum received through exchanges by three large companies, 1914–June 30, 1919.

Year.	Standard Oil Co.	General Petroleum Corporation.	Associated Oil Co.
	Barrels.	Barrels.	Barrels.
1914	1,112,941		
1915	1,566,979		[illegible]
1916	225,171	[illegible]	[illegible]
1917	[illegible]	[illegible]	[illegible]
1918	[illegible]	[illegible]	[illegible]
1919	7,922,225	6,725,441	[illegible]
1920	[illegible]	5,174,966	[illegible]

[1] First six months.

[2] The exclusive oil interests of the Southern Pacific Co. were taken over by the Pacific Oil Co. in December, 1920.

The Commission does not have information as to the quantities exchanged by the Union Oil Co. Representatives of the Shell Co. stated that their company did not exchange heavy crude for light crude. During the period covered by this report the production of the Shell Co. was practically all in the Coalinga field and was accessible to its own pipe lines.

EXCHANGE CONTRACTS.—The exchange arrangements between the large companies are usually made on a contract basis covering a period of from a few months to several years. Some contracts have no time limit and are subject to cancellation upon short notice. The contracts stipulate the terms upon which the exchange is to be made, such as the time of settlements, the place of delivery, the grade of crude petroleum, and the price at which it is to be taken in exchange. In some contracts the price is not taken as the determining basis for the quantities of crude to be delivered in exchange for the crude received, such transactions being strictly on a quantitative basis.

The more important features of the different contracts are shown in the following excerpts. One of the exchange agreements between the Standard Oil Co. and the Associated Oil Co., dated December 29, 1917, contains the following:

* * * * * * * *

The Standard Oil Company will deliver to your pipe lines in the Santa Maria Field at a mutually satisfactory point, the quantity of oil now in tankage of the Standard Oil Company at its Orcutt Station. The Standard Oil Company shall not be bound to deliver said oil to the extent that it may be destroyed by fire, collapsing of tanks, leakage or other cause. In payment for said oil the Associated Oil Company will deliver to the pipe lines of the Standard Oil Company in the Lost Hills Oil Field, at a mutually satisfactory point, a quantity of crude oil produced on Section 19-26-21 at a value equivalent to the value of the total quantity of oil delivered by the Standard Oil Company to the Associated Oil Company.

* * * * * * * *

It is understood that the value of the oil, at all times during the period of this agreement, are the values as expressed in the prices offered by the Standard Oil Company from time to time to producers in the San Joaquin Valley Fields, and if there should, at any time during the period of this agreement, be a change in the prices offered by the Standard Oil Company, the balance existing in favor of either party at the time said price change becomes effective, will be exhausted by deliveries from the other party on the basis of the prices offered by Standard Oil Company during the time such balance was accumulated.

* * * * * * * *

The following excerpt from an agreement, dated December 23, 1918, between the Shell Co. of California and the Associated Oil Co. covers an exchange of fuel oil at different points:

* * * * * * * *

Beg to advise you that until otherwise notified we will exchange oil with your company by advancing not to exceed 1,500 bbls. of net oil per day to you, delivered into your barges or cars at our Lisnton, Oregon, plant, and you to credit us in your Martinez tanks with an equal quantity to be delivered without further charge, f. o. b. our vessels or cars at Martinez.

* * * * * * * *

Section 6. Distribution of fuel oil.

METHODS OF DISTRIBUTION.—Tank steamers, barges, tank cars, and tank trucks and wagons are used quite extensively in delivering fuel oil to the consumer. Fuel oil is shipped to consumers at interior points in tank cars, and to consumers on navigable waters in tank steamers or barges. Consumers at interior points in Oregon and Washington are served by shipment in tank steamers to Portland

or Seattle, where the fuel oil is transferred into tank cars and forwarded to final destination. To consumers whose plants or storage tanks are not located near railroad tracks or wharves, deliveries are made by tank trucks or tank wagons.

PRINCIPAL USES.—Fuel oil is used as fuel principally by railroads, steamships, public utilities, and industrial plants, such as manufacturing, mining and smelting, and for domestic heating purposes. Part of the fuel oil is supplied by heavy crude petroleum just as it comes from the well. The remainder, which at present probably amounts to about 60 per cent of the total, is supplied by the residuum from the refineries. Industrial plants were the largest consumers of fuel oil sold by the large marketing companies during the period 1914–June 30, 1919; they consumed about one-third of the total reported, and railroads were second with about one-fourth of the total.

The following table shows the proportion of the fuel oil sold by the five large marketing companies used for certain specified purposes from 1914 to June 30, 1919:

TABLE 4.—*Proportion of fuel oil sold for specified purposes by five large California marketing companies, 1914–June 30, 1919.*

Consumers.	1914	1915	1916	1917	1918	1919 [1]
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Industrial	33.0	28.9	32.2	31.7	22.1	31.7
Railroads	23.9	21.1	26.0	29.7	22.3	24.6
Marine	17.6	19.7	14.5	16.5	21.7	15.1
Public utilities	12.5	17.2	16.5	10.9	14.7	12.6
Domestic	5.4	4.5	4.8	4.9	4.0	4.3
Unclassified	7.1	7.6	6.0	6.4	15.7	6.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

[1] First six months.

The above table covers only the sales of the five large marketing companies. Sales of fuel oil to industrial concerns constituted the largest proportion of the total quantity sold by them for each year of the period 1914–June 30, 1919, while the railroads were the second largest customers, but when both the production and purchases of the Southern Pacific and Santa Fe Railroad companies are considered, the railroad consumption of fuel oil exceeded that of any other class of customers.

DOMESTIC SALES.—The crude petroleum produced in California, except that consumed for fuel purposes, is refined within the State, while the refinery residuum and crude petroleum sold directly as fuel oil is distributed throughout the entire Pacific coast marketing territory and is sold for export. The total quantity of domestic sales and the quantity distributed by States and Territories for the period 1914–1919 is shown in Appendix Table 1. Complete information is shown for the Associated Oil Co., the Standard Oil Co., and the Union Oil Co. for the entire period 1914–1919, while for the General Petroleum Corporation such information was obtained from July 1, 1916, to the end of 1919, and for the Shell Co. for 1918 and 1919.

The total quantity of fuel oil sold in the domestic market, including Alaska and Hawaii, by the above-named companies and the proportion sold by each in 1918 and 1919 is shown in the following table:

TABLE 5.—*Quantity and proportion of domestic sales of fuel oil made by the five large marketing companies, 1918 and 1919.*

Company.	1919		1918	
	Barrels.	Per cent.	Barrels.	Per cent.
Standard Oil Co.	14,643,702	26.6	17,218,501	30.1
Union Oil Co.	12,678,620	23.0	13,136,217	23.0
Associated Oil Co.	12,070,279	21.9	12,982,427	22.6
General Petroleum Corporation	10,622,781	19.3	7,464,271	13.1
Shell Co.	5,023,317	9.2	6,297,454	11.3
Total	55,048,313	100.0	57,148,980	100.0

The Standard Oil Co. was the largest distributor; in 1918 it sold over 30 per cent of the combined total for the five companies and in 1919 about 27 per cent. The Union Oil Co. ranked second with 23 per cent each year, while the Associated Oil Co. had 22.5 per cent in 1918 and almost 22 per cent in 1919. The General Petroleum Corporation showed a large increase in 1919, its proportion increasing from about 13 per cent in 1918 to over 19 per cent in 1919, while the proportion sold by the Shell Co. decreased from about 11 per cent in 1918 to about 9 per cent in 1919.

In 1918 the domestic sales of fuel oil by these five companies were equivalent to 56 per cent of the total production of crude petroleum on the Pacific coast. Thus a total of 57,163,860 barrels of fuel oil was sold by the five large marketers in the Pacific coast territory, including Alaska and Hawaii, while the entire crude production of the State was 101,637,870 barrels. In 1919 the domestic fuel-oil sales of the five large marketers were equivalent to almost 54 per cent of the total crude petroleum production of California. In addition to the sales of fuel oil by the companies listed above, the Southern Pacific and Santa Fe Railroads used large quantities, and the small refiners in Southern California sold some crude petroleum and residuum for fuel purposes. Probably the equivalent of 70 per cent of California petroleum consumed in 1918 and 1919 was sold for fuel-oil purposes in the domestic market, and in addition over 7 per cent was exported.

DISTRIBUTION BY STATES.—During 1918 the Standard Oil Co. distributed fuel oil in every State of the Pacific coast territory, the Associated Oil Co. sold in every State except Idaho, the Union Oil Co. and the General Petroleum Corporation made sales in all of the territory excepting Nevada and Idaho, and the Shell Co. in all but Washington and Idaho. The General Petroleum Corporation did not sell in Hawaii, while the Shell Co. did not make any sales in either Alaska or Hawaii. The quantities and proportion of the combined sales made by each of the five large marketers are shown in Appendix Table 1. The following table shows the proportion of

the combined quantity of fuel oil sold by each of the five large marketing companies, by States, in 1918.

TABLE 6.—*Proportion of the combined quantity of fuel oil sold by each of the five large marketing companies by States and Territories, 1918.*

State or Territory.	Standard Oil Co.	Union Oil Co.	Associated Oil Co.	General Petroleum Corporation.	Shell Co.	Total.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Arizona	74.0	10.7	6.3	12.3	6.9	100.0
California	22.1	25.0	22.1	15.0	14.2	100.0
Idaho	100.0					100.0
Nevada	66.8		4.0		29.2	100.0
Oregon	25.0	22.5	42.5	15.0	5.0	100.0
Washington	47.0	18.5	19.6	15.9		100.0
Total six States	30.6	22.7	22.6	12.4	11.7	100.0
Alaska	71.0	16.3	10.1	.6		100.0
Hawaii	37.4	37.4	25.2			100.0
Total	30.1	22.9	22.6	12.1	11.3	100.0

In 1918 the Standard Oil Co. had the bulk of the fuel oil business in Arizona, Nevada, and Washington, its proportion of the total ranging from 49 per cent to almost 75 per cent, but the quantity sold in these States was relatively small. The Union Oil Co. had the largest sales in California, its proportion being 25 per cent as compared with 23 per cent each for the Standard Oil Co. and the Associated Oil Co. The Associated Oil Co. had the largest proportion of the sales in Oregon, its proportion in 1918 being 42.5 per cent as compared with 22.5 per cent for the next highest company.

EXPORT SALES.—The Standard Oil Co. and the Union Oil Co. exported 29 per cent of the total quantity of fuel oil exported by the five large companies in 1918 and 95 per cent in 1919. The quantity and proportion exported by each company is shown in Appendix Table 1. In 1918 exports constituted about 12 per cent of the total quantity of fuel oil sold by the five large companies and in 1919 slightly more than 11 per cent. The domestic and export sales combined were equivalent to almost 64 per cent of the total quantity of crude petroleum consumed in 1918 and about 60 per cent in 1919. The relations between the domestic and export sales of the five principal marketing companies for 1918 and 1919 are shown in the following table:

TABLE 7.—*Proportion of domestic and export sales of fuel oil for the five large marketing companies in 1918 and 1919.*

Company.	Export.		Domestic.	
	1919	1918	1919	1918
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
Standard Oil Co.	28.4	17.3	71.6	82.7
Union Oil Co.	27.7	24.3	72.3	75.7
Associated Oil Co.			100.0	100.0
General Petroleum Corporation	1.0	1.0	99.0	99.0
Shell Co.	4.0		96.0	100.0
Total	11.1	12.1	88.9	87.9

There was a decline in the proportion of fuel oil exported by the Standard Oil Co. in 1919 as compared with 1918. In 1918 it was about 17 per cent and in 1919 only a little over 10 per cent. The Union Oil Co. shows a decline of about 8.5 per cent in 1919 as compared with 1918, while the Shell Co. had no exports in 1918 and 4 per cent in 1919. The fuel-oil exports of all companies declined from 7,864,116 barrels in 1918 to 6,877,263 barrels in 1919, which was a decrease of about 13 per cent. Appendix Table 1 shows additional information for certain companies prior to 1918.

As already stated, the Standard Oil Co. and the Union Oil Co. exported practically all of the fuel oil exported from California in 1918 and 1919. Information segregating the quantities sold in the domestic and export markets was obtained from the Standard, Union, and Associated Oil companies for 1914–1919, from the General Petroleum Corporation for July 1, 1916–1919, and from the Shell Co. for 1918 and 1919. These exports are shown by companies in Appendix Table 1. The following table shows the combined domestic and export sales of these companies for the period 1914–1919:

TABLE 8.—*Combined quantities and proportions of the sales of fuel oil by the large California marketing companies, in the domestic and export markets, 1914–1919.*

Year.	Domestic.		Export.		Total (barrels).
	Barrels.	Per cent.	Barrels.	Per cent.	
1914	22,140,000	83.3	4,000,000	17.7	26,140,000
1915	22,000,000	85.9	4,000,000	14.1	26,000,000
1916	26,000,000	83.9	5,000,000	16.1	31,000,000
1917	24,000,000	84.2	4,500,000	15.8	28,500,000
1918	27,000,000	87.6	3,864,116	12.4	30,864,116
1919	25,000,000	82.9	5,177,263	17.1	30,177,263

It appears that the Shell and the General were not important factors in the export market prior to 1918, hence the above statistics for exports show quite accurately the export situation on the Pacific coast from 1914–1919. In the domestic market both the Shell and the General were important factors throughout the entire period; therefore, it appears probable that if complete reports were available covering domestic and export sales for these companies for the entire period, the proportion of exports would have been about the same for each year of the period 1914–1919.

CHAPTER III.

PRICES OF CRUDE PETROLEUM AND FUEL OIL.

Section 1. Basis and source of price information.

BASIS OF INFORMATION.—This chapter presents the posted or field market prices for California crude petroleum and the wholesale market price for fuel oil; the former covers the period 1910–1921 and the latter 1914–1920. The market prices for California crude petroleum which are presented in this chapter are those announced or posted by the Standard Oil Co. for the purchase of crude at the producers' tanks in the different oil fields. As already stated, there are five large crude petroleum purchasing companies in California—viz, the Associated Oil Co., the General Petroleum Corporation, the Shell Co. of California, the Standard Oil Co. (California), and the Union Oil Co. of California. The Standard Oil Co. is the principal factor and its prices are generally followed by the other purchasers.

Up to the latter part of 1914 the market price of crude petroleum in California was the price paid for crude on current contracts. As a rule the price paid for crude on old contracts did not change with the market price, but was fixed for the term of the contracts, although in some cases the price was voluntarily raised for purchases under contracts when the market price advanced. Since late in 1914 the contracts for crude petroleum have fixed the terms and quantities, while the prices paid have been the current market prices.

The market prices of fuel oil are those quoted by the large marketing companies on current contracts of sale. Usually this price is fixed for the period of the contract, but in recent years it has become common to make the fuel oil contract price on a sliding scale based upon the market price of heavy crude petroleum at the producer's tank in the oil field or upon the seller's current market price for fuel oil at the time of each delivery. The fuel oil prices are those quoted for delivery in tank cars at the seller's plant or in tank steamers at the principal fuel oil markets.

SOURCES OF PRICE INFORMATION.—The prices for California crude petroleum presented in this chapter are those announced or posted by the Standard Oil Co. for the purchase of crude at the producers' tanks in the different oil fields and were secured from reports of this company to the Commission and from the Standard Oil Bulletin, a monthly journal published by the company. The fuel oil prices were furnished by the companies, excepting those for the last few months in 1920, which were taken from trade journals.

PRICES BASED ON STANDARD OIL QUOTATIONS.—A practice of great significance that had become established in the Pacific coast petroleum industry is that of basing contract prices for crude petroleum upon the market price as announced by the Standard Oil Co., and of providing that an increase or decrease in the Standard's announced price during the life of the contract shall cause a corresponding change in the prices paid under the contract. The practice of making such contracts is quite general for the purchase of crude petroleum and also in the sale of fuel oil, and such contracts are made to some extent for the sale of other petroleum products. The significance of this practice is that a price change by the Standard automatically causes the same change in the prices of other companies. Even the Union Oil Co., which is the second largest market-

ing company in California, agrees to pay the "published schedule prices offered by the Standard Oil Co." for the royalty portion purchased from the owner on oil lands which it leases, and the prices which it pays members of the Independent Oil Producers' Agency are also based on the Standard's announced prices.

Section 2. Production, consumption, stocks, and prices.

The relation between the supply of and demand for crude petroleum is indicated by the quantities of crude held in storage. As the demand for refined petroleum products and fuel oil has increased, a stock of crude petroleum, which would have indicated an overproduction in California in 1914, might be inadequate at a later date; for example, in 1918 and 1919 the quantity held in storage remained practically constant, yet prices were materially advanced.

Prior to 1920 the year of largest production in California was 1914, with an output of over 108,000,000 barrels. The consumption during 1914 was almost 98,000,000 barrels, leaving a surplus of about 10,000,000 barrels, which, added to the enormous quantity in storage at the beginning of the year, gave a total at the end of the year of more than 58,500,000 barrels. This overproduction, together with the enormous stocks, caused a reduction in the annual average price from $0.39 in 1914 to $0.36 a barrel during the following year for the low-grade crude under 18° Baumé, which was then about 60 per cent of the total production. The light crude was only a little higher in price, the price for 24° Baumé, a representative grade, averaging only $0.41 per barrel in 1915. There was a decline in consumption of about 2,000,000 barrels, which resulted from the loss of foreign markets during the first part of 1915 on account of the war. During the next two years the war demands of the allied nations increased the consumption to nearly 105,000,000 barrels in 1916 and to almost 109,000,000 barrels in 1917. In response to this increasing demand, production was also increased during these two years, but to a much less extent, so that the accumulated stocks were drawn upon heavily, decreasing to about 44,000,000 barrels at the end of 1916 and to about 32,000,000 barrels at the end of 1917.

During 1918 and 1919 war demands first declined and then ceased, so that consumption was much smaller, while production continued to increase, being over 101,000,000 barrels in both years. Notwithstanding the decrease in consumption it still exceeded production by about 2,000,000 barrels for the two years. In 1920 both production and consumption were greater than ever before, production being almost 106,000,000 barrels, while the consumption reached the record total of nearly 114,000,000 barrels. This caused a reduction of over 8,000,000 barrels in stocks, which declined to 23,240,000 barrels, or only 38 per cent of the quantity held in storage at the end of 1914. During 1921, 114,849,994 barrels were produced, while the consumption was 109,066,283 barrels. With the increasing consumption and the decreasing stocks, the market prices increased in 1916 and for each year thereafter until in 1920 the prices of the crude under 18° Baumé had increased 357 per cent over 1914, while the 24° Baumé grade had increased 242 per cent. While there was a radical decline in the prices of crude petroleum in all oil fields east of the Rocky Mountains in 1921, the 1920 prices were maintained in California until May 13, when the prices of all grades were reduced $0.25 per barrel. On August 8, 1921, a second reduction in the prices of all grades was announced.

As already stated, a considerable portion of the crude petroleum produced in California has been sold for fuel oil purposes without refining. California is the only oil-producing State in the United States where crude petroleum has been used directly for fuel purposes, excepting in small quantities, which have been consumed in the oil fields. The consumption of fuel oil in California has been one of the most important demand factors, and including the quantity exported was equivalent to approximately 77 per cent of the total crude production in 1918 and 1919. The total quantity of crude petroleum produced annually can be quite accurately obtained from the annual consumption and storage statistics. The following table shows the production, consumption, and stocks in barrels, the storage supply in months, and the average prices of representative grades of crude petroleum, by quarters, for the period 1910–1921, while similar information, with index numbers, is shown in Appendix Table 2:

TABLE 9.—*Quarterly production, consumption, stocks, and average prices of representative grades of crude petroleum, in barrels of 42 gallons, and storage supply in terms of monthly consumption, 1910–1921.*

Year and quarter.	Production.	Consumption.	Stocks at end of quarter.	Storage (months' consumption).	Price per barrel.	
					Under 15°	24°
1910—First	16,127,170	16,205,845	10,208,028	2.6	$0.39	$0.65
Second	20,000,000	16,227,000	13,977,028	3.3	.39	.65
Third	21,185,267	15,451,240	19,211,054	3.9	.43	.69
Fourth	19,954,000	17,202,000	21,963,054	3.8	.39	.65
1911—First	18,000,000	14,701,000	25,262,054	5.3	.39	.65
Second	17,000,000	13,000,000	29,262,054	6.3	.39	.65
Third	16,000,000	13,000,000	32,262,054	6.8	.39	.65
Fourth	15,000,000	15,000,000	32,262,054	6.5	.39	.65
1912—First	16,000,000	15,000,000	33,262,054	6.6	.39	.65
Second	16,000,000	15,000,000	34,262,054	6.8	.39	.65
Third	16,000,000	15,000,000	35,262,054	7.1	.39	.65
Fourth	16,000,000	15,000,000	36,262,054	7.2	.39	.65
1913—First	16,000,000	15,000,000	37,262,054	7.4	.39	.65
Second	16,000,000	15,000,000	38,262,054	7.6	.39	.65
Third	16,000,000	15,000,000	39,262,054	7.8	.39	.65
Fourth	16,000,000	15,000,000	40,262,054	8.0	.39	.65
1914—First	16,000,000	15,000,000	41,262,054	8.2	.39	.65
Second	16,000,000	15,000,000	42,262,054	8.4	.39	.65
Third	16,000,000	15,000,000	43,262,054	8.6	.39	.65
Fourth	16,000,000	15,000,000	44,262,054	8.8	.39	.65
1915—First	16,000,000	15,000,000	45,262,054	9.0	.39	.65
Second	16,000,000	15,000,000	46,262,054	9.2	.39	.65
Third	16,000,000	15,000,000	47,262,054	9.4	.39	.65
Fourth	16,000,000	15,000,000	48,262,054	9.6	.39	.65
1916—First	16,000,000	15,000,000	49,262,054	9.8	.39	.65
Second	16,000,000	15,000,000	50,262,054	10.0	.39	.65
Third	16,000,000	15,000,000	51,262,054	10.2	.39	.65
Fourth	16,000,000	15,000,000	52,262,054	10.4	.39	.65
1917—First	16,000,000	15,000,000	53,262,054	10.6	.39	.65
Second	16,000,000	15,000,000	54,262,054	10.8	.39	.65
Third	16,000,000	15,000,000	55,262,054	11.0	.39	.65
Fourth	16,000,000	15,000,000	56,262,054	11.2	.39	.65
1918—First	16,000,000	15,000,000	57,262,054	11.4	.39	.65
Second	16,000,000	15,000,000	58,262,054	11.6	.39	.65
Third	16,000,000	15,000,000	59,262,054	11.8	.39	.65
Fourth	16,000,000	15,000,000	60,262,054	12.0	.39	.65
1919—First	16,000,000	15,000,000	61,262,054	12.2	.39	.65
Second	16,000,000	15,000,000	62,262,054	12.4	.39	.65
Third	16,000,000	15,000,000	63,262,054	12.6	.39	.65
Fourth	16,000,000	15,000,000	64,262,054	12.8	.39	.65
1920—First	16,000,000	15,000,000	65,262,054	13.0	.39	.65
Second	16,000,000	15,000,000	66,262,054	13.2	.39	.65
Third	16,000,000	15,000,000	67,262,054	13.4	.39	.65
Fourth	16,000,000	15,000,000	68,262,054	13.6	.39	.65
1921—First	16,000,000	15,000,000	69,262,054	13.8	.39	.65
Second	16,000,000	15,000,000	70,262,054	14.0	.39	.65
Third	16,000,000	15,000,000	71,262,054	14.2	.39	.65
Fourth	16,000,000	15,000,000	72,262,054	14.4	.39	.65

[1] Figures for the period discontinued by Standard except on oil contracted from July 16, 1913, to Dec. 1, 1913.

Production increased rapidly from 1910 to 1914; from 1915 to 1917 there was a pronounced decline, which was followed by an increase in 1918; in 1919 there was a slight decline from the total for the previous year, which was followed by a substantial increase in 1920; while during 1921 the record production was 114,849,224 barrels. The production in 1910 was about 78,000,000 barrels, while that for 1920 was almost 114,850,000 barrels, a gain of approximately 47 per cent.

The consumption varied from a little over 66,500,000 barrels in 1910 to almost 114,000,000 barrels in 1920, after which it declined to 102,068,000 barrels in 1921, due to the general business depression. The decrease in 1914 and 1915 was caused by the closing of important foreign markets to American petroleum products during the first year of the war, and the increase in 1916 and 1917 was the result of the increasing war demands of the Allies and the United States. The decrease to 102,000,000 barrels in 1918 resulted from a gradual decline in war demands after May, and the close of the war early in November. The increase to nearly 103,000,000 barrels in 1919 and to almost 114,000,000 barrels in 1920 was caused by a revival in industrial demand, which began in the summer of 1919. During 1921 consumption was 102,068,000 barrels. The increase in consumption from 1910 to 1921 was 53 per cent.

At the end of 1910 there were about 31,000,000 barrels of crude petroleum held in storage, as compared with about 19,700,000 barrels on December 31, 1909. The rapid accumulation of stocks, which began during the second quarter of 1910, continued uninterrupted, until at the end of 1914 there were over 58,500,000 barrels in storage. The highest quarterly total was at the end of March, 1915, when almost 60,800,000 barrels were held in storage. Beginning with June, 1915, there was an uninterrupted decline in stocks to the middle of 1918. During the next year and one-half there was a fluctuation in the quantity held in storage without any material change at the end of 1919 as compared with the middle of 1918, while during 1920 stocks were rapidly depleted, until only 22,240,000 barrels were in storage at the end of the year. At the end of 1920 stocks were 14 per cent larger than at the end of the first quarter of 1910. The record production during 1921, accompanied by a decline in consumption, caused an increase to 34,922,000 barrels, or a gain of over 12,700,000 barrels. The changes in production, consumption, and stocks by quarters are graphically shown in Chart 1, opposite page 24.

As shown on this chart, the quarterly production exceeded consumption, except for the fourth quarter of 1912, and the quantity held in storage increased rapidly from the beginning of 1910 to the end of the first quarter of 1915. Beginning with the second quarter of 1915 consumption exceeded production until the end of June, 1918, and stocks declined much more rapidly than they had accumulated prior to 1915. The quarterly production slightly exceeded consumption during the last half of 1918 and the first half of 1919, while during the next year and one-half consumption increased very rapidly and greatly exceeded production, consequently stocks again declined. Beginning with the first quarter of 1921 the quarterly production was larger than ever before, while the quarterly consumption de-

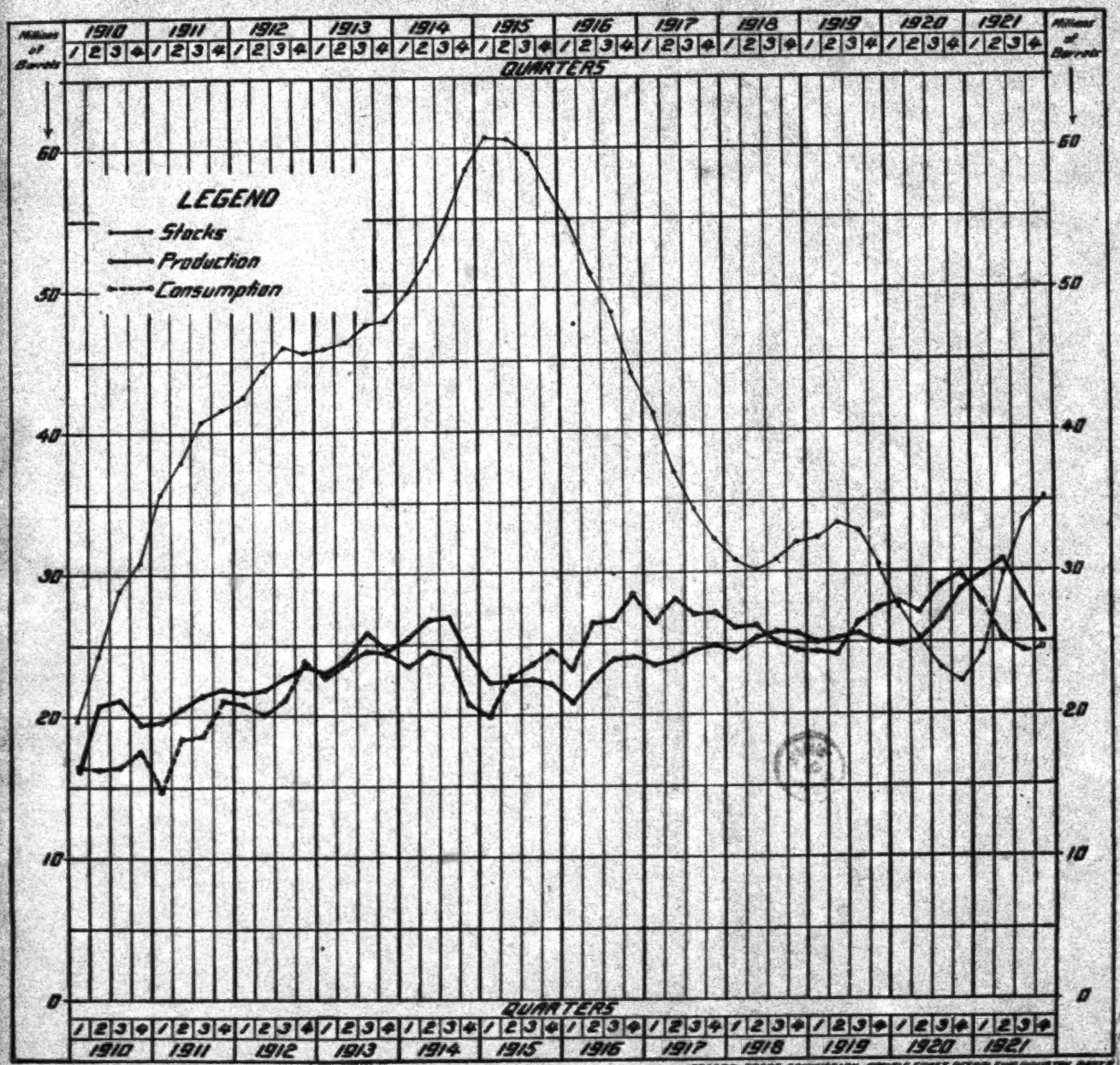
clined considerably from the record of almost 30,000,000 barrels for the last three months of 1920, and stocks again increased.

While the actual quantity of crude petroleum held in storage was larger at the end of 1920 than at the end of the first quarter of 1910, when the increase in the annual rate of consumption is considered, the stocks on the latter date were relatively smaller. For example, the quantity in storage at the end of the first quarter of 1910 was equivalent to 3.6 months' consumption, while the quantity in storage at the end of 1920, although about 2,700,000 barrels greater than that at the beginning of the period, was equivalent to only 2.2 months' consumption, or a decrease of 39 per cent.

Quarterly average prices of crude petroleum at the producers' tanks in the oil fields are shown for two grades of crude. The grades shown are those for heavy crude under 18° Baumé, which has been used largely for fuel purposes, and 24° Baumé crude, which is a representative grade of light crude. During the first quarter of 1910 the average price for the heavy crude was $0.50 per barrel, after which it declined rapidly to $0.30 per barrel for the last quarter of the year. On account of the large overproduction, particularly of heavy crude, this low price was continued from the last quarter of 1910 for the next three years. The overproduction of heavy crude was so great that the Standard Oil Co. made no new contracts for this grade from September 23, 1912, to December, 1913. During 1914 and 1915 the average price fluctuated from $0.325 to $0.40 per barrel. Beginning the latter part of 1915 there was a rapid increase in prices of this grade from $0.366 per barrel to $1.60 per barrel at the end of 1920. This price of $1.60 per barrel remained unchanged until May 13, 1921, when it was reduced to $1.35 per barrel or an average of $1.47 for the second quarter of 1921. On August 8, 1921, another reduction of 25 cents per barrel was made, which reduced the average for the third quarter to $1.19 per barrel.

The movement of the prices of the 24° Baumé crude was different for certain periods than that shown for the heavy crude. At the end of the first quarter of 1910 the average price was $0.65 per barrel, and in harmony with the course of heavy crude prices it was reduced to $0.38 per barrel for the last quarter of 1910. There was a slight increase in 1911 to an average of $0.45 per barrel, and in the second quarter of 1912 the average increased to $0.55 per barrel. This latter price was maintained for the next two years. The increase in the average price in 1911 and 1912 occurred while the average price of heavy crude was at its lowest level. A large increase in the production of the higher grades caused a decline to an average of $0.40 per barrel for the fourth quarter of 1914, and the price of this grade remained at that level for about a year, after which there was a continuous advance to $1.88 at the end of 1920. This high price of $1.88 per barrel continued until May 13, 1921, when the price of this grade was reduced to $1.63 per barrel, which gives an average of $1.75 per barrel for the second quarter of 1921. On August 8, 1921, the price was reduced to $1.38 per barrel. From the beginning of 1910 to the end of 1920 the average price of 24° Baumé crude increased from $0.65 to $1.88, or 189 per cent. The course of the prices for these two grades of crude petroleum is graphically shown in Chart 2, opposite page 36.

Chart 1. PRODUCTION, CONSUMPTION, AND STOCKS OF CRUDE PETROLEUM IN CALIFORNIA BY QUARTERS, 1910 – 1921.



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The supply of crude petroleum shown for each quarter includes the quantity held in storage at the beginning of the period and the production during the period. When consumption and production are equal, the current demand is supplied by current production, but when they are unequal, the surplus is placed in storage or the deficit is supplied therefrom. If the petroleum industry could always secure a supply sufficient to meet the demand no crude would be held in storage, because there is a rapid and heavy loss of the more volatile portions while in storage.

As pointed out on page 66, Part I, the lack of statistics showing the quantities of heavy and light crude in storage makes it impossible to show the exact relationship between the supply and demand for these two grades of crude petroleum. Chart 2 shows that from 1910 to the middle of 1915 the combined supply of both heavy and light crude petroleum increased very rapidly while consumption increased much more slowly. During that same period the price of 24° Baumé crude declined rapidly in the last half of 1910, and was advanced in 1911 and again in 1912, while the price of the heavy crude, under 18° Baumé, declined rapidly in 1910 and did not begin to advance in price until the last three months of 1913. The heavy crude continued to advance during the first half of 1914, while, beginning with the second quarter of 1914 and continuing until the end of the year, the 24° Baumé crude experienced a sharp decline in price. The lack of uniformity in the price movement of these two grades of crude petroleum during this period was apparently the result of a difference in the relation between supply and demand for each grade.

The peak of the available supply of crude petroleum was reached in the third quarter of 1915, after which there was a marked decline, which was temporarily checked during the latter part of 1918 and the first three quarters of 1919, after which the decline continued to the end of 1920. There was a slight increase for the first quarter of 1921, which was followed by a marked increase during the latter quarters. As shown in Chart 1, opposite page 34, and Table 9, page 32, the last three quarters of 1920 and the first quarter of 1921 was the only time during which the quantity in storage alone was not equivalent to more than three months' consumption.

The price of both grades of crude petroleum began to advance practically as soon as the available supply began to decline in 1915, and they both were advanced rapidly and quite uniformly from that time until the end of 1920. The more rapidly growing demand for the lighter grades of crude resulted in an increase in the spread between the price of these two grades from 2 cents per barrel in the first quarter of 1915 to a differential of 28 cents in 1920 and 1921.

Section 3. Prices of crude petroleum.

PRICES OF ALL GRADES OF CRUDE.—Appendix Tables 2 and 3 show the market prices of the various grades of California crude petroleum at the producers' tanks for the San Joaquin Valley and the Whittier-Fullerton fields, as announced by the Standard Oil Co., with the dates on which there was a change in the price of any grade for the

12-year period 1910–1921, while the same information is given for representative grades in the following table:

TABLE 10.—*Market prices of representative grades of California crude petroleum, per barrel of 42 gallons, at the producers' tanks in the San Joaquin Valley fields, showing date of change, 1910–1921.*

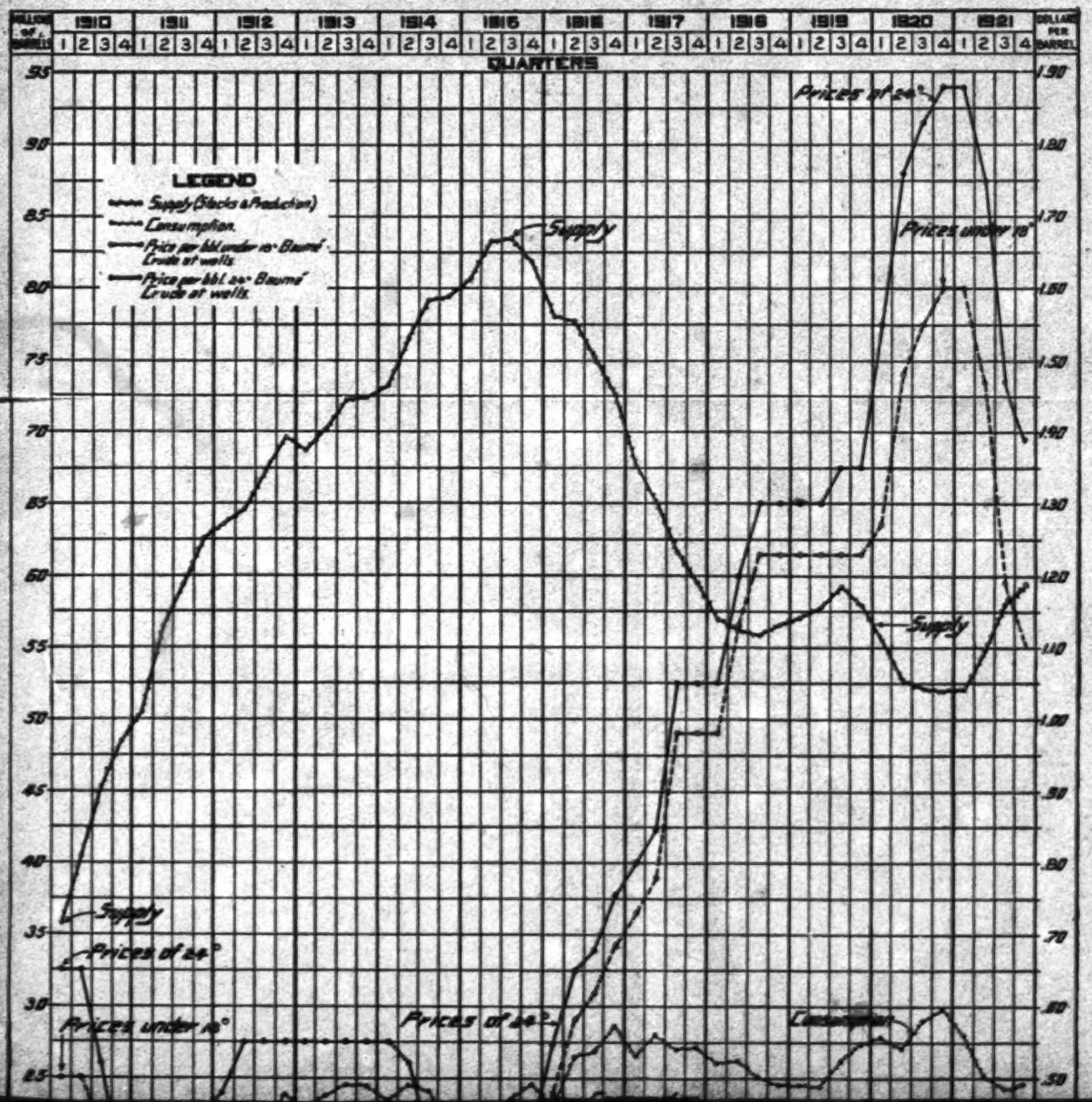
Date of change.	Baumé degrees.				
	Under 18°.	24°	27°	33°	37°
1910—January 1	$0.50	$0.65	$0.85	$0.65	$0.65
September 1	.30	.30	.30	.30	.30
November 9	.32	.85	.80	.80	.80
1912[1]—March 5	.30	.55	.60	.60	.60
April 20	.30	.55	.60	.60	.60
1913—April 1	(2)	.55	.60	.75	.85
December 1	.35	.55	.60	.75	.85
1914—January 20	.40	.55	.60	.75	.85
May 20	.40	.50	.55	.70	.80
July 1	.40	.45	.50	.65	.75
July 20	.40	.424	.45	.60	.69
October 3	.37½	.40	.45	.60	.69
1915—June 7	.35[3]	.40	.45	.60	.69
October 20	.37½	.40	.45	.60	.69
November 20	.40	.45	.50	.65	.75
December 28	.45	.50	.55	.70	.[illegible]3
1916—February 16	.53	.60	.65	.85	.[illegible]3
April 1	.58	.65	.71	.91	.[illegible]91
July 7	.63	.70	.76	.96	.[illegible]96
September 20	.68	.75	.81	.91	$1.03
November 21	.73	.80	.86	.96	1.07
1917—May 11	.78	.85	.91	1.01	1.13
June 7	.88	.95	1.01	1.11	1.23
June 28	.96	1.05	1.11	1.21	1.33
1918—May 1	1.25	1.30	1.36	1.46	1.57
1919—June 10	1.23	1.35	1.41	1.51	1.62
1920—January 31	1.23	1.51	1.78	2.28	2.68
March 17	1.48	1.76	2.03	2.53	2.83
July 10	1.60	1.88	2.15	2.65	2.95
1921—May 19	1.35	1.63	1.90	2.40	2.70
August 3[6]	1.10	1.38	1.65	2.15	2.45

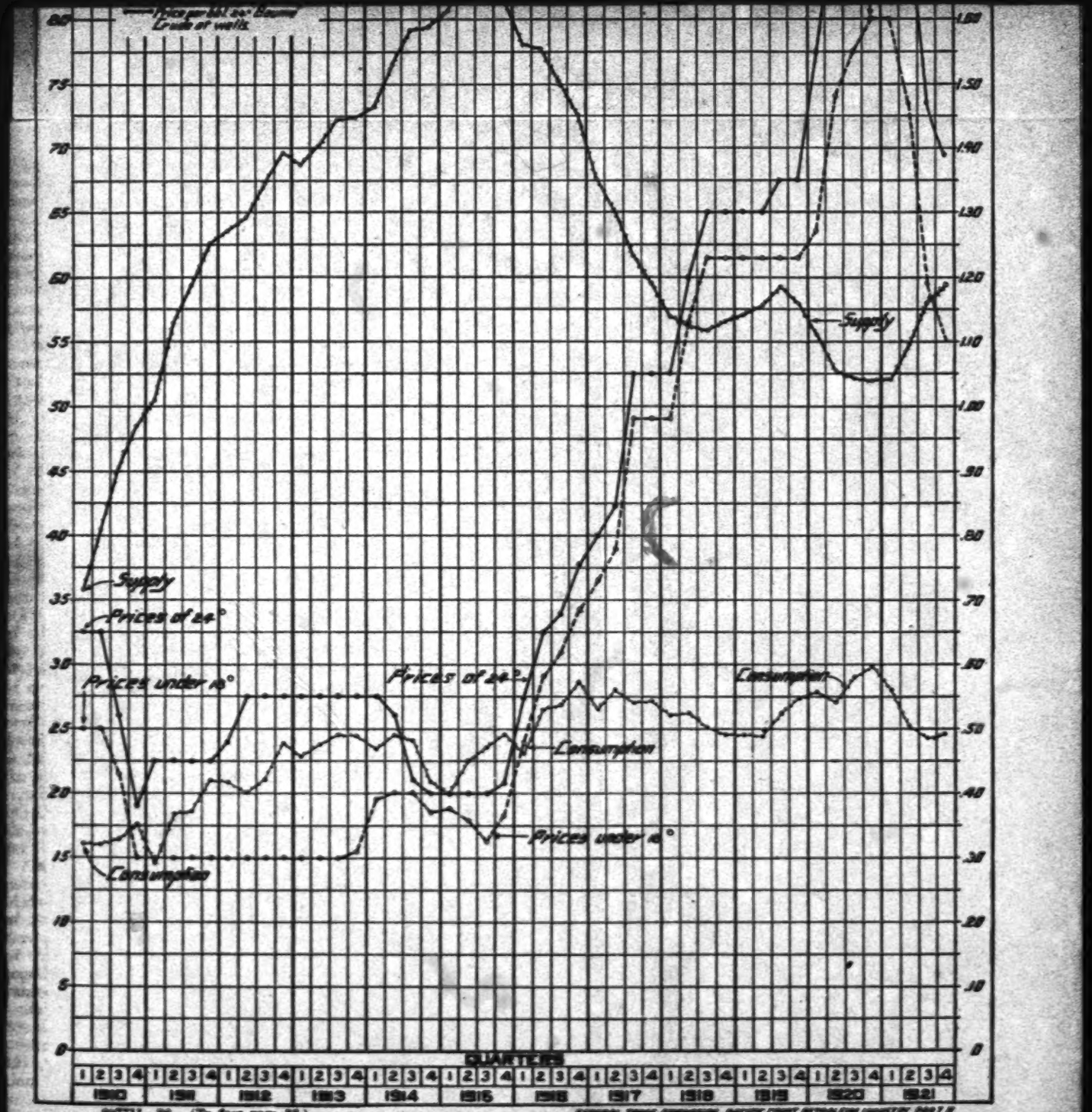
[1] No change in 1911.
[2] No quotation.
[3] And for each increase in gravity of 1 full degree above 37° gravity, 1 cent per barrel additional.
[4] And for each increase in gravity of 1 full degree above 37° gravity, 2 cents per barrel additional.
[5] And for each increase in gravity of 1 full degree above 37° gravity, 3 cents per barrel additional.
[6] No change in 1921 after this date.

The above prices are for crude petroleum produced in the San Joaquin Valley fields, which include the Coalinga, Lost Hills-Belridge, McKittrick, Midway-Sunset, Elk Hills, and Kern River fields. The prices for crude petroleum produced in the Whittier-Fullerton and other fields in the southern part of the State varied considerably from those shown above prior to 1916. During the period covered in this report the bulk of California crude petroleum production was obtained from the San Joaquin Valley fields, and the price discussion has been limited to the changes in those fields. The table begins with 1910, in order to show a comparison of recent prices with a more normal year than 1914. During the early months of 1910 conditions were normal in the California petroleum industry, as production and consumption were evenly balanced.

California crude petroleum is usually classified under two general grades, known variously as heavy or low-grade crude and as light or high-grade crude. The heavy crudes range from 8°–17.9° Baumé and the light 18° Baumé and over. The lowest Baumé degree on which prices are quoted is 14°.

Chart 2. **SUPPLY, CONSUMPTION, AND PRICES OF CRUDE PETROLEUM IN CALIFORNIA BY QUARTERS, 1910–1921.**




Prices per bbl. at Coast Grade of wells
Supply
Prices of 24°
Prices under 16°
Prices of 24°
Consumption
Supply
Consumption
Prices under 16°
Consumption
QUARTERS
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
1920
1921

SUPPLY AND DEMAND CONDITIONS PRIOR TO 1910.—The production of crude petroleum in California increased from less than 5,000,000 barrels per year in 1900 to over 58,000,000 barrels per year in 1909, while during the same period the annual consumption increased from about 4,000,000 barrels to over 52,000,000 barrels. As a result of overproduction in California during most of the period the quantity held in storage increased from about 600,000 barrels at the end of 1900 to over 19,000,000 barrels at the end of 1909, and the average annual price declined from $0.96 per barrel in 1900 to $0.26 in 1905, after which time it gradually increased to $0.54 in 1909.

During the last three months of 1909 the quarterly production and consumption were nearly equal, each being about 15,000,000 barrels. Stocks therefore remained nearly constant, increasing only from 19,495,206 barrels on September 30, to 19,698,761 barrels on December 31, 1909. Production and consumption remained almost equal during the first quarter of 1910; this gives a period of six months during which supply and demand were almost equal; hence, the first quarter of 1910 was selected as a basis of comparison of conditions in recent years. This balance of production and consumption in California and the general stability of prices in the latter part of 1909 resulted from the greatly increased demand, which was due to the extension of the market in the Northwest, the adoption of fuel oil by several railroads for firing locomotives, by the increased number of steamships plying on the Pacific Ocean, and to the general revival of business on the Pacific coast.

PERIOD OF OVERPRODUCTION.—The year 1910 opened with the price of all crude petroleum produced in the San Joaquin Valley at $0.50 per barrel, but on January 5 the price of the light crude, 21° Baumé and above, was advanced to $0.65 per barrel. There was expectation of even higher prices during the year, on account of the continuing increase in consumption which began in the spring of 1909. The producers' agencies had contracted with the Union Oil Co. of California to build a new pipe line from the Kern River, the Coalinga, and the Midway fields to the coast. This new pipe line would enable the producer to market his crude. Another reason for optimism regarding market conditions was due to the fact that the Associated Oil Co. had come definitely under the control of the Southern Pacific Co., and it was believed this would lead to large purchases of fuel oil for the Southern Pacific.

March, 1910, was a month long to be remembered in the California petroleum industry. On March 15 the Lakeview No. 1 gusher in the Midway-Sunset field was brought in with an initial daily production of about 40,000 barrels. The daily production continued very large throughout the remainder of the year and the aggregate production of this one well was over 8,000,000 barrels. This large production, together with that of other large gushers brought in about this time, caused a period of overproduction and depression in the crude petroleum industry of California, from which it did not fully recover for six years. Beginning with March, 1910, there was an excess of production over consumption, which continued until the middle of 1915, except in December, 1912, when consumption exceeded production.

During April, 1910, the Standard Oil Co. adopted the plan of buying crude petroleum on daily runs only, no new contracts being made. By the end of the second quarter there was a distinct weakness in the prices of fuel oil at coast points, and a tendency of fuel-oil users to hold off making contracts covering their requirements due to the belief that, with the enormous output of the Lakeview No. 1 and other gushers, prices must decline. Lack of demand for fuel oil reduced the deliveries of the Independent Oil Producers' Agency to 40 per cent of the production of its members. Other producers were in a similar predicament, and some of them began to curtail their production. The long-expected break in fuel oil prices at coast points came at the beginning of the third quarter, when the market price dropped $0.10 per barrel at San Francisco and Los Angeles, or to $0.90 a barrel. This was for spot delivery, however, and no contracts were made at this price. Following this decline in fuel oil prices the market price of crude petroleum at the producers' tanks in the oil fields was reduced for heavy and light crude on September 1, 1910, when both the Standard Oil Co. and the Associated Oil Co. announced that they would pay $0.30 per barrel for daily runs in the San Joaquin Valley fields. This was a reduction of $0.20 per barrel on heavy crude and of $0.35 per barrel on light crude petroleum. The companies selling to the Union Oil Co. actually received $0.36 per barrel for deliveries in September, while the Southern Pacific Co. continued to pay $0.50 per barrel. When the decrease in prices occurred on September 1, the quantity held in storage was over 27,000,000 barrels and production was about 1,500,000 barrels per month in excess of consumption.

Late in September the Independent Oil Producers' Agency and the Associated Oil Co. entered into a contract whereby the Associated was to market the Agency's surplus crude petroleum for a period of three years on a 10 per cent commission. This arrangement was brought about by the inability of the Union Oil Co. to market the total production of the Agency members, and by the lack of further storage capacity for the surplus.

On November 9 the Standard Oil Co. again began making contracts for light crude, 22°-24° Baumé at $0.45, an increase of $0.15 per barrel, while crude 25° Baumé and over was advanced $0.20 per barrel. The price for crude under 22° Baumé was not advanced at this time due to an overproduction of this heavier grade. As a result, during the last three months of 1910 conditions had become quite serious, especially for the small producer.

Curtailment of production, which had been talked of for some time, and put into practice by some companies, was now considered essential by most producers. According to trade journal reports, the subject of curtailment of production was discussed at a meeting of the directors of the Independent Oil Producers' Agency early in December, and it was decided that such curtailment was essential. The Agency then had in storage over 13,000,000 barrels of crude petroleum and its members were producing 35,000 barrels a day and selling only 25,000 barrels.

Production increased considerably during 1911, mainly as a result of the gushers brought in by the Honolulu Consolidated Oil Co. and the Standard Oil Co. in the Midway field, and also partly to

the active drilling campaigns of the Southern Pacific and Santa Fe Railroads, both of which started drilling on their land grants to supply their own consumption. Consumption increased even more rapidly than production; however, there was an excess of production in each month, which resulted in a steady increase in the quantity of crude petroleum held in storage. There was no change in prices during 1911.

During the third quarter of 1912 stocks continued to increase, although consumption was gaining on production. This was the condition when, on September 23, the Standard Oil Co. ceased making new contracts for crude petroleum under 18° Baumé. Crude, under contracts already in force, continued to be taken at $0.30 a barrel, but as these contracts expired they were not renewed. The result of the withdrawal of the Standard from the heavy crude petroleum market practically meant that the small independent producer of this grade had no market for his production, except through the General Petroleum Co., as the Union Oil Co. and Associated Oil Co. already had more crude from their own production and from the Agency than they could market. Hence, those small producers reached only by the pipe lines of the Standard Oil Co. had no market at all for their heavy crude petroleum. The refusal of the Standard to renew contracts began to have its effect on production during the last quarter of 1912. As their contracts expired, the producers began shutting down their wells, and by the latter part of December all producers of heavy crude petroleum, except the Standard Oil Co., the General Petroleum Co., and the railroad companies, were curtailing their production. At the end of December it was estimated that there were 1,147 wells shut in, with a potential daily production of over 26,000 barrels. So far as the total production of the State was concerned there was a decline in November and December as compared with October, but the total for the whole quarter was larger than for any other previous quarter in the history of the petroleum industry of California. The overproduction of crude petroleum was confined to the heavy crude under 18° Baumé, and as a result the price of this grade not only was not advanced during 1912, but, as already stated, on September 23 the Standard Oil Co. ceased to make any new contracts for heavy crude. On the other hand, on March 5 the prices of all grades, 18° Baumé and above, were increased from $0.05 to $0.10 per barrel, except in the case of 21° Baumé crude, which was advanced $0.20, and on April 29 higher prices were announced for crude 29° Baumé and over.

Throughout the year 1913 production was in excess of consumption and for the entire year it exceeded consumption by over 2,200,000 barrels. During the winter of 1913 more than a thousand wells were shut in, with an estimated daily potential production of more than 25,000 barrels. In June, due to the greatly increased consumption, many of these wells were cleaned out and production resumed, but the main cause of the increased production during the summer of 1913 was the bringing in by the Standard Oil Co. of two wells, which together produced about 20,000 barrels per day.

In October, 1913, the Standard Oil Co. announced that it would discontinue the purchasing of crude petroleum from lands which were the subject of litigation with the United States Government

under the withdrawal order of September 27, 1909. The Standard, as purchaser of the crude petroleum, had been made a defendant in a number of pending suits, and the company explained that it did not wish to subject itself to the liability of paying for the crude petroleum twice, once to the producer when it was purchased, and again to the Government, if the latter should win the withdrawal cases. A decline of 13,000 barrels per day in production in the Midway field and of about 20,000 barrels per day in the State's daily production were attributed to the shutdown of many wells on lands in litigation, that were deprived of a market by the refusal of the Standard to purchase their crude petroleum. As a result of this, decrease in production is shown for the last quarter of 1913. Although stocks and production had both increased, consumption had increased more rapidly, so that the quantity in storage was relatively smaller than at the beginning of the year.

On April 1, 1913, the prices of certain light crudes were changed; for example, 30°–32° Baumé were decreased $0.05 per barrel, while the crudes 35° Baumé and over were increased $0.05 per barrel. The prices of all other grades remained unchanged. On December 1 the Standard Oil Co. resumed the purchase of crude petroleum below 18° Baumé at $0.35 per barrel, which represented an advance of $0.05 per barrel over the price of September 23, 1912, when the company ceased making contracts. In signing up new contracts the company insisted on a two-year term. The price of 18°–20° Baumé, inclusive, was also advanced $0.05 per barrel the same day, but there were no changes in the prices of the crude 21° Baumé and over.

During the first six months of 1914 there were 31 wells brought in with an initial daily production of 1,000 barrels or over. The production in June, 1914, was the largest ever recorded up to that time, with a daily average production of 302,403 barrels. The increase in June was due to the large production from the gushers recently brought in on the Maricopa Flats in the Midway-Sunset field. One of these gushers, that of the Lakeview No. 2 Oil Co., brought in on May 18, was producing from 20,000 to 25,000 barrels per day. In August the Standard again issued an order that only the quantity of crude petroleum named in its contracts would be taken and that the company would not make contracts for the purchase of new crude until conditions changed. This course was taken on account of the decreased domestic demand, as well as the loss of the South American and Oriental markets, which were temporarily cut off by the war. Attempts were immediately made to curtail production, which succeeded in reducing the output during the last quarter of the year. The Independent Oil Producers' Agency began to prorate the crude taken from its members, and even the Standard Oil Co. began to curtail its production. In many cases, where drilling was in progress, it was stopped just before reaching the oil sand.

During the early part of 1914 the Shell interests,[1] which had previously acquired the producing properties of the California Oilfields (Ltd.), organized the Valley Pipe Line Co. and began the construction of a pipe line from the Coalinga field to San Fran-

[1] Part I, page 110.

cisco Bay. About the same time this concern began the erection of a refinery and storage facilities at Martinez on San Francisco Bay.

The record consumption up to this time was for the second quarter of 1914, but after the effects of the war began to be felt consumption declined rapidly throughout the remainder of the year. Notwithstanding the reduction in production which began the latter part of the year consumption declined to a much greater extent, and consequently there was a marked increase in stocks.

Beginning in 1914 the Standard Oil Co. changed its price policy with respect to purchases of crude petroleum, so that contracts covering a period of one year or more provided that the producer should receive during the period of the contract the current prices that this company offered, with the further provision that in case of a decline in the prices to a level lower than that named at the date of the contract, the producer could, if he so wished, cancel the contract. This company was busily contracting for all the heavy crude petroleum offered, and on January 20, 1914, it advanced the price of crude under 18° Baumé, while the prices for other grades remained unchanged. On May 20 the Standard Oil Co. reduced the prices of all grades of crude of 21° Baumé and above, $0.05 per barrel. This cut in price was due to the overproduction of the light grades of crude. The prices of light crudes were again reduced on July 1, when the 21°–23° Baumé was reduced 2½ cents per barrel and 24° Baumé and above was reduced $0.05 per barrel. On July 30 the Standard Oil Co. reduced the prices of certain grades of crude petroleum, the 24°–26° Baumé being reduced 2½ cents per barrel, the 27°–32° Baumé $0.05 per barrel, the 33° and 34° Baumé $0.10 per barrel, and the 35° Baumé and over $0.15 a barrel. There were no changes in the prices of the grades lower than 24° Baumé. The last price reduction for the year was on October 3, when there was a reduction of 2½ cents for all grades below 27° Baumé, while all grades 29° Baumé and above were reduced $0.10 per barrel. This was the only reduction in the price of the heavy crude in 1914.

On February 23, 1915, the Supreme Court of the United States handed down its decision in the Midwest case, upholding the validity of the withdrawal order of September 27, 1909. This decision had a far-reaching effect upon the petroleum industry of California, for the Department of Justice immediately began to bring dispossession suits against the claimants to the withdrawn oil lands in California, to ask for injunction against further drilling on these lands, and for the appointment of receivers.

The production of each quarter in 1915 was much smaller than that for the corresponding period of 1914, and there was a decline from the record production of 103,600,000 barrels in 1914 to 89,500,000 barrels the following year, or a total decline of about 14,000,000 barrels. There were several causes for the decline in production, among which were the low prices of crude petroleum at the well, which discouraged drilling operations and led to the temporary abandonment of producing wells, the activity of the United States Department of Justice, mentioned above, and the decline in the output of the big gushers in the Midway field.

Consumption declined about 2,000,000 barrels in 1915, the lowest consumption being in the first quarter, after which there was a

rapid increase, consumption exceeding production for the last three quarters of the year. As a result, the quantity of crude petroleum in storage reached its maximum of almost 61,000,000 barrels in May, after which it declined steadily during the remainder of the year. The main reason for the increase in consumption was the war demands of the Allies.

On June 7, 1915, the market price of crude of 20° Baumé and under was reduced $0.05 per barrel. This was the last decline in price up to May 13, 1921. On October 26, 1915, the Standard Oil Co. advanced the market price of crude petroleum of 20° Baumé and under $0.05 per barrel. On November 20 there was another advance in prices. The crude petroleum 14°–20.9° Baumé was advanced 2½ cents per barrel and crude 21° Baumé and over was advanced $0.05 per barrel, and on December 28 the market prices of all grades of crude petroleum were again increased. The crude under 18° Baumé was increased $0.03 per barrel and the 24° Baumé $0.05 per barrel. For the first time a different price was quoted for each increase of 1° Baumé; beginning with 18°, 1 cent per barrel being added for each degree above 17° Baumé.

PRICE CONDITION DURING THE WAR PERIOD.—The decrease in production during the first quarter of 1916 was the result of two violent storms in the San Joaquin Valley oil fields during January, which destroyed nearly 2,000 derricks. Beginning with the second quarter, production increased gradually for the remainder of the year, and the total for 1916 was approximately 2,300,000 barrels greater than that for the previous year. The principal reasons for the relatively small increase in production were the shutting in of approximately 5,000 barrels daily during the first half of the year; the failure of the Agency members to develop their properties, due to the long-time low-priced contracts, and the institution of suits by the Government against operators on withdrawn lands. The increase in the production during the last half of the year was due chiefly to the cleaning out of oil wells that had been closed down, and to more active drilling operations.

There was a considerable decrease in consumption in the first quarter of 1916 as compared with the last three months of 1915, while during the remainder of the year consumption increased very rapidly, the total for the year being about 14,000,000 barrels greater than the preceding year and in excess of production by about 12,100,000 barrels. This large increase in consumption was due principally to the heavy exportation of petroleum products to meet war demands.

The year 1916 was characterized by rapidly increasing prices for crude petroleum, there being five advances during the year. The grade below 18° Baumé advanced from $0.48 per barrel in January to $0.73 per barrel in November, and the 24° Baumé crude from $0.50 in January to $0.80 in November. The increase in price for crude petroleum above 24° Baumé ranged from $0.31 for 25° to $0.44 for 37° Baumé, while the increase of crude lighter than 37° was even greater.

During the first half of 1917 production was smaller than for the last half of 1916, while for the remainder of the year there was a considerable increase, principally due to the production from three gushers brought in by the Standard Oil Co. in the Montebello pool

during August, which together were producing about 26,000 barrels a day. Consumption was almost 4,000,000 barrels larger in 1917 than for the preceding year. This increase occurred in the first half of the year as compared with the corresponding period of 1916. Consumption continued to exceed production and stocks were drawn upon to the extent of almost 11,600,000 barrels.

In 1917 it was first claimed that an irreducible minimum of stocks of 10,000,000 barrels was necessary for the petroleum industry in California. In order to operate the pipe lines it was considered necessary to keep the lines comparatively full of crude petroleum, and at that time it was estimated that the quantity required in pipe lines and working tanks was 6,000,000 barrels and that an additional 4,000,000 barrels was necessary at the refineries.

During the second quarter of 1917, when production was running about 15 per cent below consumption and the quantity in storage was being rapidly depleted, fears of a serious shortage began to be expressed, and in May the governor of California appointed a committee with three members to report on the petroleum situation. In July this committee rendered a report in which it stated that a very serious shortage of crude petroleum was imminent in California, and recommended that certain means be taken to increase production and conserve consumption.

As a result of these conditions the prices of crude petroleum were increased on three occasions during 1917. The first was on May 11, when all grades were increased $0.05 per barrel, and in the following month there were two further increases of $0.10 each. In spite of the greatly increased market prices, premiums were still being paid by the small refiners in some cases for crude petroleum during August.

During the last three quarters of 1918 the production of each quarter exceeded that of the corresponding quarter of the preceding year. The total for the year exceeded 1917 by almost 4,400,000 barrels. This increase was due to the development of production in the Montebello and Coyote Hills pools.

Consumption was smaller for each quarter than for the corresponding quarter of the preceding year. Consumption was greater than production for the first half of the year and smaller for the last half, but for the entire year there was an excess of consumption of about 408,000 barrels.

Early in 1918 the Oil Division of the United States Fuel Administration was organized to exercise general supervision over the petroleum industry of the entire country. In order to increase production in California it authorized an increase of $0.25 per barrel in crude petroleum prices, and on May 1, 1918, the Standard Oil Co. advanced the market price of all grades of crude petroleum $0.25 per barrel. This was the only change in prices during the year, and it was the largest single increase that had been made up to that time for California crude petroleum. It brought the price of crude under 18° Baumé up to $1.23 per barrel. After the armistice, November 11, 1918, all war restrictions on the industry were lifted, and on December 16 the Pacific coast section of the Oil Division of the United States Fuel Administration was dissolved.

RECENT PRICE CONDITIONS.—The production of crude petroleum was very uniform throughout 1919, at slightly more than 25,000,000 barrels per quarter. The total production for the year was only 416,000 barrels less than that for the preceding year. Following the armistice there was a temporary decline in consumption during the first half of the year. In the third quarter there was an increase of about 2,000,000 barrels over the preceding quarter, while the consumption for the last three months was approximately 1,000,000 barrels greater than that for the third quarter. The 1919 consumption was about 740,000 barrels greater than that for 1918. For the entire year there was an excess of consumption of over 1,500,000 barrels.

There was no change in the market price of crude petroleum under 20° Baumé during 1919, but on June 10 all of the lighter crudes 20° Baumé and over were advanced from $0.01 to $0.05 per barrel. One encouraging feature of the situation on the Pacific coast was the great increase in production during 1920, the production increasing steadily throughout each quarter. The increase during the year was due chiefly to new production brought in by the Standard Oil Co. and the Southern Pacific Co. in the recently developed Elk Hills district. The production for 1920 established a record about 2,100,000 barrels larger than the previous high record of 1914. Notwithstanding the record production of 1920, it was exceeded by consumption for each quarter of the year, and for the last half of the year it exceeded that of any previous similar period. The excess of consumption was over 8,000,000 barrels, and stocks were reduced almost to the level of 1910, while the annual consumption had increased over 70 per cent.

Beginning in the last quarter of 1919 and continuing throughout 1920 there was an insufficient production of certain petroleum products, especially gasoline, due to a shortage of light crude petroleum, and large purchases were made, particularly from the Mid-Continent and Wyoming fields, to supplement the California supply. As a result of this condition three advances were made in crude petroleum prices aggregating $0.37 per barrel for crude under 18° Baumé and $1.33 per barrel for 37° Baumé crude.

The production of crude petroleum in the second quarter of 1921 was the record quarterly production for California, being over 1,850,000 barrels in excess of the previous high record, which was for the last three months of 1920. This increase was largely due to the discovery of the Huntington Beach pool, and to the increased production from the Elk Hills district. The increased production of crude petroleum in the latter part of 1920 and in 1921 enabled the California refiners to supply the gasoline demand from their own refineries. Consumption declined as compared with the last two quarters of 1920, consequently stocks increased about 12,000,000 barrels.

Beginning in January, 1921, crude petroleum prices were reduced more than 60 per cent in all of the oil fields east of the Rocky Mountains. This was followed by a radical decline in the f. o. b. refinery prices of gasoline in the Mid-Continent field, which made it profitable for marketers in California to ship gasoline from Oklahoma and Texas into the Pacific coast territory. This competition, together with an increase in crude petroleum production, accompanied

by a decline in its consumption in California, led to a reduction of $0.25 per barrel for all grades of California crude on May 18, 1921. On August 3 a further reduction of $0.25 per barrel was made for all grades. This was the first time that prices were low enough in the Mid-Continent field to overcome the disadvantages of the high freight rates and to enable Mid-Continent gasoline to be shipped into the Pacific coast territory in sufficient quantities to affect prices.

Section 4. Market prices of fuel oil.

BASIS OF FUEL OIL PRICES.—Fuel oil is marketed under contracts which now usually run for one year, but which formerly often covered a period of several years. Such contracts formerly specified a price for the term of the contract, but in recent years most of the marketing companies have not specified the price but have stipulated that settlement should be made at the price current at the place and date of delivery. In some contracts the price agreed on is that announced by the Standard Oil Co. for crude petroleum at the producers' tanks in the oil fields, plus transportation charges, specified in the contract. All prices used in this section are the market prices for fuel oil delivered at destination in sellers' tank car, tank steamer, barge, or wholesale distributing station.

The prices of fuel oil on the Pacific coast correspond with the prices of heavy crude petroleum quite closely, because a large proportion of the fuel oil is merely heavy crude petroleum transported directly from the producers' tanks in the oil fields unchanged in any respect to the consuming centers along the coast. This proportion now runs about 30 per cent, but in former years it ran as high as 80 per cent.

CHANGES IN DOMESTIC PRICES.—San Francisco, Los Angeles, Portland, and Seattle are the most important fuel oil markets on the coast, while Spokane is the most important interior market in the Pacific coast territory. Appendix Table 5 shows the prices for five of the large marketing companies at the above-named points, together with the dates of changes. As a rule the prices of fuel oil at the different markets were changed either simultaneously, or almost so, by the large marketing companies. In some cases a particular company named a higher price than that quoted by the other companies, as for example, the Standard Oil Co. at Los Angeles during the latter part of 1918. The Standard stopped quoting prices in Los Angeles after August 7, 1918. No one company uniformly changed its prices first.

MONTHLY AVERAGE PRICES.—The market prices of fuel oil have been tabulated for the period beginning with January, 1914. But before discussing the prices for this period the general trend of fuel oil prices from the autumn of 1909 through 1913 should be noted. In the fall of 1909 the principal marketers of fuel oil on the Pacific coast were the Union Oil Co., the Associated Oil Co., and the Standard Oil Co. The Union Oil Co. had recently made a contract with the Independent Oil Producers' Agency whereby the former was made the exclusive sales agent of the latter. This made the Union Oil Co. the most important fuel-oil marketer on the Pacific coast at that time.

The contract prices of fuel oil at San Francisco Bay points in the fall of 1909 ranged from $0.85 to $1.10 per barrel. The Standard Oil Co. was offering fuel oil for immediate delivery at $0.75 per barrel, but was not making contracts at that price. It was believed by the trade that this lower price was the result of the recent Union Agency contracts. In February, 1910, the market price of fuel oil on ordinary contracts was $1 per barrel in both San Francisco and Los Angeles. During this month, however, the Standard Oil Co. made a large railroad contract at $0.90 per barrel for the delivery of fuel oil at San Francisco Bay points.

The Lakeview No. 1 gusher came in on March 15, 1910, with enormous production and flooded the crude oil market. Anticipating a material decline in fuel oil prices, consumers began refusing to make contracts at current prices. The expected break in prices came early in July. The Union Oil Co. began to quote immediate deliveries at San Francisco Bay points at $0.90 per barrel and was soon followed by the other marketing companies. Early in September the Associated Oil Co. made a contract with a large steamship concern for delivery at San Francisco Bay points at $0.80 per barrel. A month later the Standard Oil Co. reduced the contract price to $0.60 per barrel.

The Los Angeles Oil Consumers' Association was formed during the summer of 1910 by consumers in Los Angeles who were dissatisfied with the prices of fuel oil quoted by the large marketing companies. Among the members of this association were the Los Angeles Gas & Electric Co., several ice and brick manufacturing concerns, and all of the Los Angeles refineries. The association asked for bids on 70,000 barrels a month. Heavy crude petroleum at the producers' tanks in the San Joaquin Valley fields was then $0.30 per barrel and the railroad freight rate to Los Angeles $0.40 per barrel. In November the Associated Oil Co. and the Union Oil Co. bid $0.90 per barrel. These bids were rejected, and in January the association succeeded in getting 10,000 barrels a month at $0.70 per barrel. In January, 1911, fuel oil was quoted at San Francisco at $0.60 to $0.80 per barrel and at Los Angeles at $0.70 to $0.80 per barrel.

In October, 1912, fuel oil was delivered at Puget Sound points on a large railroad contract for $0.70 per barrel, or a decrease of $0.13 per barrel from the price of the previous year. As already stated, due to the continued overproduction of heavy crude in the summer and fall of 1912, the Standard Oil Co. on September 23 discontinued the renewal of contracts for the purchase of this grade of crude. This action of the Standard Oil Co., as well as the low prices being paid by other companies, caused a decline in the production of the heavy crude, so that the prices of this grade and of fuel oil at coast points had increased about $0.10 per barrel by January, 1914.

At the beginning of 1914 there were three large marketers of fuel oil, viz, the Standard Oil Co., the Union Oil Co., and the Associated Oil Co. At that time these three companies, as shown in Appendix Table 1, were about equal in the volume of their sales. Later the General Petroleum Corporation and the Shell Co. became factors in the fuel oil market. The monthly average wholesale market prices

of the Standard Oil Co. for fuel oil f. o. b. refinery San Francisco Bay and Seattle are shown in the following table from 1914–1920:

TABLE 11.—*Monthly average wholesale prices of fuel oil at Seattle and f. o. b. refinery San Francisco Bay, announced by the Standard Oil Co. (California), 1914–1920.*

Date.	San Francisco.	Seattle.	Date.	San Francisco.	Seattle.
1914.			1917.		
January	$0.85	$1.07	July	$1.45	$1.60
February	.85	1.00	August	1.45	1.60
March	.85	1.00	September	1.45	1.60
April	.85	1.00	October	1.45	1.60
May	.85	1.00	November	1.45	1.60
June	.85	1.00	December	1.45	1.60
July	.85	1.00	1918.		
August	.77	.92	January	1.45	1.60
September	.73	.90	February	1.45	1.60
October	.73	.88	March	1.45	1.64
November	.70	.85	April	1.45	1.73
December	.70	.85	May	1.60	1.87
1915.			June	1.60	1.87
January	.70	.81	July	1.60	1.87
February	.70	.80	August	1.60	1.85
March	.70	.80	September	1.60	1.85
April	.70	.80	October	1.60	1.85
May	.70	.80	November	1.60	1.85
June	.70	.80	December	1.60	1.87
July	.70	.80	1919.		
August	.84	.78	January	1.60	1.85
September	.85	.80	February	1.60	1.85
October	.86	.84	March	1.60	1.85
November	.71	.91	April	1.60	1.85
December	.75	.95	May	1.60	1.85
1916.			June	1.60	1.85
January	.90	1.00	July	1.60	1.85
February	.95	1.05	August	1.60	1.85
March	.95	1.10	September	1.60	1.85
April	.95	1.10	October	1.60	1.85
May	.95	1.10	November	1.60	1.85
June	.95	1.10	December	1.60	1.85
July	.97	1.14	1920.		
August	1.00	1.20	January	1.60	1.85
September	1.05	1.23	February	1.60	1.85
October	1.05	1.25	March	1.72	1.97
November	1.05	1.27	April	1.85	2.10
December	1.15	1.30	May	1.85	2.10
1917.			June	1.85	2.10
January	1.17	1.35	July	1.94	2.19
February	1.30	1.46	August	2.00	2.25
March	1.30	1.35	September	2.00	2.25
April	1.30	1.35	October	2.00	2.25
May	1.37	1.43	November	2.00	2.25
June	1.34	1.40	December	2.00	2.25

The Standard Oil Co. and the Union Oil Co. quote wholesale prices for delivery in San Francisco. Prior to May, 1918, their San Francisco prices were the same as those quoted f. o. b. San Francisco Bay refineries, while subsequent to the 1st of May the San Francisco price had been $0.03 per barrel higher than the refinery price. The course of these prices for San Francisco Bay refineries is graphically shown on Chart 3, facing page 48. The price movement of fuel oil at Los Angeles was practically the same as at the refineries on San Francisco Bay, so it is not necessary to show the Los Angeles prices in the table, and the same applies to prices at Portland, which were practically the same as those at Seattle.

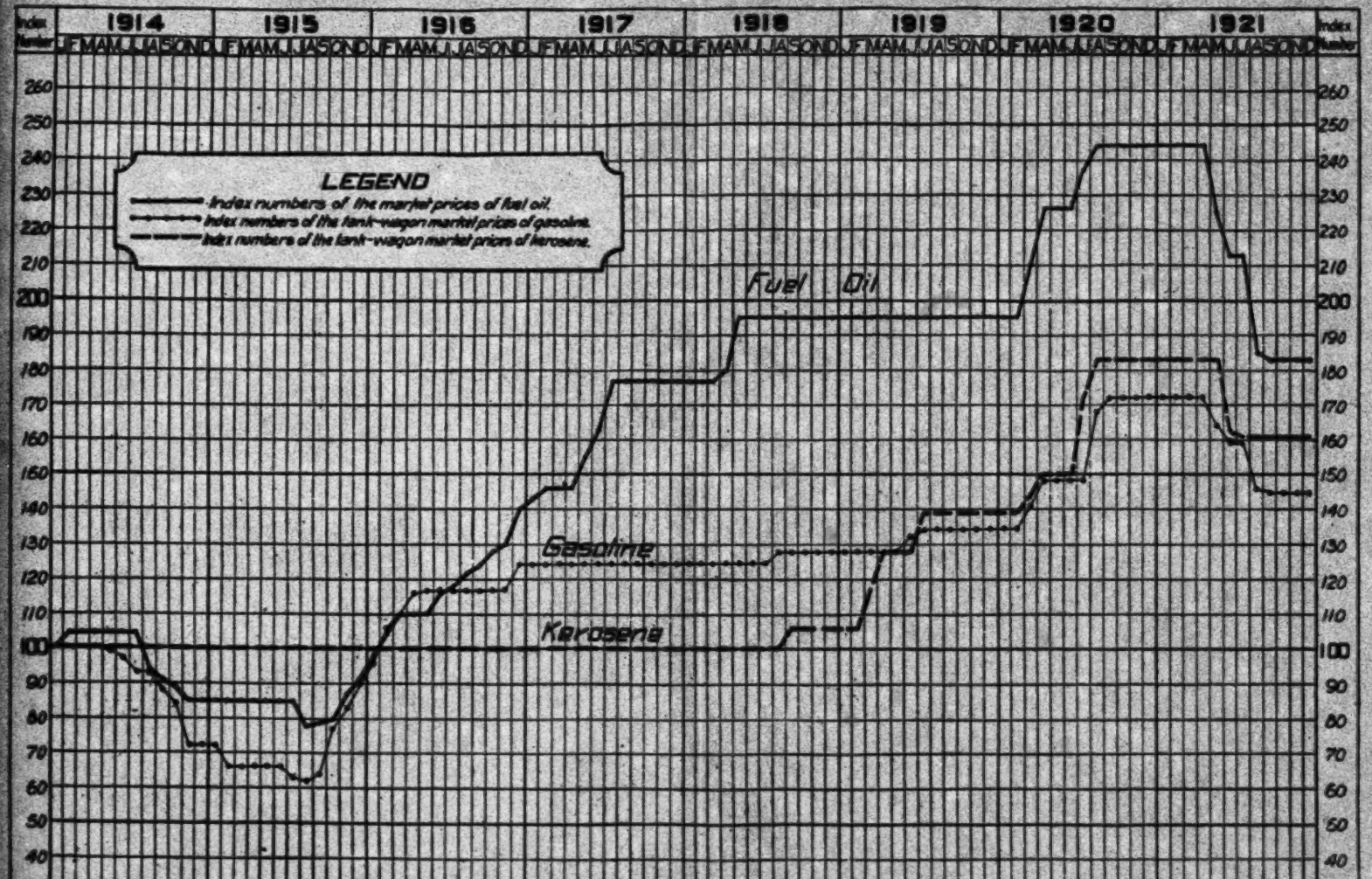
The average prices of fuel oil in January, 1914, were $0.83 per barrel at San Francisco and $0.97 at Seattle. These averages increased to $0.85 and $1, respectively, in February, and remained stationary until August, 1914. Reduction in August and October brought the monthly average price at San Francisco down to $0.70 per barrel in November, and this price obtained until August, 1915. In the latter month the price of fuel oil reached its lowest point during the period. As shown by Appendix Table 5, on August 6, 1915, the current prices at San Francisco and Seattle were $0.60 and $0.75, respectively, and, as shown in the table above, the monthly average prices were $0.64 and $0.78 per barrel. The reason for the decline in the price of fuel oil was the decrease in demand brought about by the European war and also by the record production of crude petroleum (see p. 31). So far as the demand was concerned, it was estimated in October, 1914, that there had been a falling off in the fuel-oil consumption since the beginning of the war of about 20,000 barrels a day.

By the autumn of 1915 the demand for fuel oil had revived, but the production of heavy crude had declined. In the last half of August, 1915, the price of fuel oil began to advance, and it showed an uninterrupted increase until in August, 1920, the average price reached $2 per barrel at San Francisco Bay refineries and $2.25 per barrel at Seattle, or increases of 144 per cent and 132 per cent, respectively, over the prices in January, 1914. On May 15, 1921, fuel oil was reduced $0.25 per barrel at all points, and a further reduction of $0.25 per barrel was made August 3, 1921. During the summer of 1918 five of the independent refiners at Los Angeles formed the California Petroleum Exchange for the purchase of crude petroleum and the sale of fuel-oil and other petroleum products. Over 60,000 barrels of fuel-oil residuum per month was being produced by the members of the exchange.

HEAVY CRUDE PETROLEUM AND FUEL-OIL PRICES.—As already stated, the principal difference between the price of the heavy crude petroleum at the producers' tanks in the oil fields and the prices of fuel oil at coast points is that the fuel-oil price generally includes transportation charges at tariff rates on which there is a profit and also handling charges, but at times when demand was very strong the margin between the two included an additional profit, while when demand was very light the only difference was the pipe-line transportation rate. In Appendix Table 6 are shown the monthly average prices of heavy crude petroleum at the producers' tanks in the oil fields, the monthly average San Francisco Bay f. o. b. refinery fuel-oil prices, the difference between those prices and the wholesale prices of fuel oil at San Francisco Bay refineries and also the differences between the wholesale prices of fuel oil at Seattle and at refineries on San Francisco Bay. The following table shows the differences between the monthly average prices of heavy crude petroleum at the producers' tanks in the oil fields and the wholesale price of fuel oil at San Francisco Bay refineries and also the difference between the Seattle and the San Francisco Bay wholesale prices of fuel oil:

Chart 3. MONTHLY AVERAGE WHOLESALE PRICES

OF GASOLINE, KEROSENE, AND FUEL OIL AT SAN FRANCISCO, BASED ON INDEX NUMBERS (JANUARY 1914 = 100), 1914–1921.



FEDERAL TRADE COMMISSION PACIFIC COAST PETROLEUM INDUSTRY, PART II.

TABLE 12.—*Excess of San Francisco Bay refinery fuel oil prices over heavy crude petroleum prices in San Joaquin Valley field and of Seattle wholesale fuel oil prices over San Francisco Bay refinery prices, 1914–1920.*

Date.	San Francisco Bay fuel oil prices over field prices of heavy crude.	Seattle wholesale fuel oil prices over San Francisco Bay prices.
1914.		
January–July	$0.45	$0.15
August	.37	.15
September	.33	.15
October	.36	.15
November–December	.32½	.15
1915.		
January	.32½	.11
February–May	.32½	.10
June	.30½	.10
July	.37½	.10
August	.35½	.10
September	.33½	.15
October	.32½	.17
November	.33	.20
December	.36	.20
1916.		
January–March	.37	.20
April–June	.33	.20
July	.34	.20
August–November	.37	.20
December	.42	.20
1917.		
January	$0.44	$0.15
February–April	.47	.15
May	.51	.15
June–December	.47	.15
1918.		
January	.47	.15
February	.47	.17
March	.47	.19
April	.47	.27
May–July	.37	.27
August–November	.37	.25
December	.37	.27
1919.		
January–December	.37	.25
1920.		
January–June	.37	.25
July	.37½	.25
August–December	.40	.25

As already stated, the price of fuel oil at the refineries on San Francisco Bay has usually consisted of the price of the heavy crude in the oil fields plus the pipe-line rate and a handling charge. The pipe-line rate from the San Joaquin oil fields to San Francisco Bay is $0.35 per barrel.[2] The excess of the San Francisco Bay refinery price of fuel oil over the field price of heavy crude petroleum plus the transportation rate usually ranged from $0.02 to $0.12 per barrel. In December, 1920, the margin was only $0.05 per barrel, while during part of the period of overproduction of heavy crude petroleum in 1914–1916 the difference between the field price of the crude and the fuel oil price at San Francisco Bay was less than $0.35 per barrel, which was the pipe-line tariff rate. But as the principal marketers of fuel oil transported the crude petroleum through their own pipe lines at a cost during 1914 to 1916, inclusive, ranging from $0.11 to about $0.15 per barrel, they still made a profit on transporting the fuel oil even when the margin fell to $0.32 per barrel. During 1917, 1918, and the first six months of 1919 the pipe-line costs per barrel ranged from $0.11 to almost $0.24 per barrel and the excess usually from $0.37 to $0.47, so that even during this period there was a considerable margin remaining after allowing for the pipe-line costs.[3]

The difference between the prices of fuel oil at the refineries on San Francisco Bay and Seattle is made up of the arbitrary trans-

[2] The Shell Co.'s rate from Coalinga to San Francisco Bay was 15 cents per barrel up to February, 1918, when it was increased to 25 cents per barrel.
[3] See Part I, page 261.

portation charge from San Francisco to Seattle by tank steamer, which charge was less than the Shipping Board rate. These tank steamers are either owned or chartered by the marketing companies and operated by them. The difference was $0.15 per barrel for all of the year 1914, and during 1915, 1916, and 1917 it varied from $0.10 to $0.20 per barrel, while in 1918 it fluctuated between $0.16 and $0.27 per barrel, and during all of 1919 and 1920 it was $0.25 per barrel. The above differences show that wholesale consumers in Seattle, and also at Portland, have ordinarily paid from $0.15 to $0.25 per barrel more for fuel oil than consumers purchasing at refineries on San Francisco Bay.

CHAPTER IV.

MARKETING REFINED PRODUCTS.

Section 1. Marketing territory.

As already stated, the home-marketing territory of the Pacific coast for refined petroleum products constitutes a strictly contiguous geographic unit, which in all but one instance is bounded by State lines. This marketing area includes the States of Arizona, California, Nevada, Oregon, Washington, and a small section of western Idaho. The principal marketing companies do not all sell the same variety of products throughout this marketing area. While the territory as outlined above is still designated as the home territory in which California petroleum products are marketed, the scarcity of certain products, such as gasoline and fuel oil, in recent years made it necessary for some of the large marketing companies in California to draw upon refineries operating on Wyoming and Mid-Continent crude for gasoline, and also quite recently upon Mexican imports of tops, i. e., unfinished naphtha distillate, and also fuel oil, to supplement California production. On the other hand, considerable quantities are exported to foreign countries and to overseas territories and possessions. During the period 1914–1919 the principal exports were to British Columbia, Panama, Chile, and the Orient, and considerable quantities of certain products were sold in Alaska, Hawaii, and the Philippines.

Section 2. Methods of distribution.

DISTRIBUTING AGENCIES.—Refined petroleum products are distributed in wholesale quantities in tank steamers, tank cars, tank trucks, and wagons. In distributing such products, particularly gasoline and kerosene, shipments are made in tank cars or tank steamers from the refinery to the principal marketing centers, where storage facilities are maintained for bulk shipments from which the requirements of the retailer are supplied. The retail trade, especially that in sparsely settled sections remote from the main distributing stations, is often served in barrels, drums, cases, and cans. Refined products are distributed to the ultimate consumer by various retail agencies, (1) service stations where the merchandising of certain products, such as gasoline and lubricating oils, constitute the sole business; (2) as a side line, for example, in connection with the garage business, or when handled with other merchandise, such as hardware, paint, groceries, or in a general store.

The distributing organization is well illustrated by that of the Standard Oil Co. (California), which is the largest factor in the marketing branch of the Pacific coast petroleum industry. On January 1, 1920, this company operated 16 main sales stations,

385 substations, and 220 service stations throughout the Pacific coast territory and Hawaii. The main stations and the substations handle all petroleum products and are used for wholesale and retail distribution, while the service station distributes directly to the consumer. Refined products, such as gasoline, kerosene, and lubricating oils, are shipped from the company's refineries in tank steamers, tank cars, or motor vehicles to the various main and substations, which supply their own service stations and the retail trade. The distribution of main stations, substations, and service stations operated by the Standard Oil Co. on January 1, 1920, is shown in the following table:

TABLE 13.—*Marketing stations operated by the Standard Oil Co. Jan. 1, 1920.*

District.	Station.		
	Main.	Sub-station.	Service.
Phoenix, Ariz.	1	24	
Bakersfield, Calif.	1	10	3
Fresno, Calif.	1	24	4
Los Angeles, Calif.	1	45	27
Oakland, Calif.	1	9	20
Sacramento, Calif.	1	24	11
San Diego, Calif.	1	6	1
San Francisco, Calif.	1	23	24
San Jose, Calif.	1	14	11
Stockton, Calif.	1	20	9
Reno, Nev.	1	14	1
Portland, Oreg.	1	33	26
Tacoma, Wash.	1	27	13
Seattle, Wash.	1	41	21
Spokane, Wash.	1	20	9
Honolulu, Hawaii	1	5	
Total	16	385	220

As shown above, there is one main station in each district. Each district is under the supervision of a manager, who has general charge of the business in his territory.

Prior to 1915 the marketing functions of the large companies were confined chiefly to wholesale distribution of refined petroleum products, and there was practically no integration of the retail branches of the business in their marketing organization. Some of the companies did retail gasoline and lubricants through their own service stations, but their activities in this field were not of sufficient magnitude to be significant. However, beginning with 1915 the development of the retailing activities of the large companies began on a large scale; this was especially true in the case of the Standard Oil Co. In 1914 this company had 14 main stations, 147 substations, and 31 service stations, while on January 1, 1920, the company operated 16 main stations, 385 substations, and 220 service stations. Its first service stations were purchased from the National Supply Company on October 1, 1914.

LEASING EQUIPMENT.—A noteworthy feature in connection with the development of the retail branches of the petroleum business was the practice of leasing free of charge or selling on a convenient installment plan service-station equipment to dealers under the condition that the equipment be used only for the sale of the company's

products. The Associated Oil Co. is known to have engaged in this practice on a very large scale, having thus brought under its control, at the end of 1919, 787 retail stations. The Union Oil Co. has also engaged in this practice to some extent, but its activities seem to have been confined to the city of Los Angeles and to a less extent to other parts of its marketing territory. The Shell Co. reported that although it made a practice of renting or leasing equipment to dealers, it never had any understanding whereby the parties using its equipment were obligated to purchase its products. The Standard Oil Co. stated that it had furnished equipment free of charge to only four stations in the Yosemite National Park, which bound the respective dealers by an exclusive sales contract.

SERVICE STATIONS BY STATES.—Certain refined petroleum products are sold directly to the consumer by the four large marketing companies in the Pacific coast territory from service stations which they own or control. The number of such stations owned and operated by each of the four companies with their location, by States, is given in the following table:

TABLE 14.—*Distribution of retail service stations by companies and by States, Jan. 1, 1920.*

Company.	California.	Washington.	Oregon.	Nevada.	Arizona.	Total.
	Number.	Number.	Number.	Number.	Number.	Number.
Associated Oil Co.	717		41			758
Shell Co.	48	20	15			83
Standard Oil Co.	180	43	24	1		248
Union Oil Co.	33	1	1	1	1	37
Total.	978	64	81	2	1	1,126

The large marketing companies sell gasoline and lubricating oils at retail from their own service stations, while sales in wholesale quantities are made from the refinery or from large distributing stations.

There was considerable variation between the companies in the location of their service stations in the different States. The Associated Oil Co. operated no service stations in the States of Washington, Nevada, and Arizona, while the Union Oil Co. was the only company having at least one service station in each State in this territory. The Standard Oil Co. and the Shell Co. made sales in western Idaho, but they did not maintain service stations in that State. About three-fourths of the service stations operated by these companies were in California.

In addition to the stations thus owned and operated by the companies directly, the Associated Oil Co. reported control of a large number of stations through its system of leasing equipment. At the end of 1919 this company had tying contracts covering 787 stations, of which 716 were in California and the remaining 41 in Oregon. The dealers having these contractual relations with the Associated Oil Co. include a rather wide range of business establishments, such as garages, automobile-accessory dealers, and paint stores. The Union Oil Co. reported that it had entered into leasing and condi-

tional-sales contract with 48 dealers, all of which were located in California, making a total of 80 stations either owned or controlled.

SERVICE STATIONS BY CITIES.—The location of service stations by cities throughout the Pacific coast territory was secured from three of the large companies. Such information was not received from the Shell Co. The location of the service stations by cities for the companies reporting is shown in Appendix Table 7. The Associated Oil Co. did not operate service stations in Los Angeles, nor in any other city or town in southern California. The Union Oil Co. owned only one service station in Los Angeles and none in other parts of southern California. However, these companies had several leasing contracts at some points that are located in the southern part of the State. For example, the Union Oil Co. has a contract with the Pennant Oil & Grease Co., which operated 22 service stations in Los Angeles. This company also reports 8 leasing contracts in San Diego. Thus, while these companies did not retail refined petroleum in southern California, they were assured a share of the business in this section through their leasing contracts.

In Portland, Oreg., the Standard Oil Co. maintained 20 service stations and the Associated Oil Co. 8, while the Union Oil Co. had no service stations there. This latter company did not operate service stations in Seattle or Spokane, Wash., while the Standard Oil Co. had 21 and 8 service stations, respectively, in those cities. The Associated Oil Co. did not retail gasoline in the States of Washington, Nevada, and Arizona.

As already stated, the Associated Oil Co. had tying contracts covering 757 service stations, of which all but 41 were in California. Most of these service stations were located north of Bakersfield, Calif. The Associated Oil Co. did not lease any equipment to dealers in Los Angeles, or in any other town south of San Luis Obispo, where it had leasing contracts with 24 dealers. Sixteen of the remaining 41 stations which were located in Oregon were in Portland. Twenty-two of the 48 service stations covered by leasing and conditional sales contracts with the Union Oil Co. were in Los Angeles. These 22 stations were all operated by the Pennant Oil & Grease Co. The Union also leased equipment covering 8 stations in San Diego, while the remainder were in small towns.

No exact statistics are available showing the proportion of gasoline which was distributed by the large companies directly to the consumer or through independent retailers, except for a rough estimate made by the Standard Oil Co. concerning its own retail trade. This company reported that at the beginning of 1920 slightly less than half of its gasoline and 60 per cent of its kerosene was sold directly to the consumer, while the remainder was sold to the retail trade.

USE OF COUPON BOOKS.—All of the large companies and some of the smaller ones operating service stations used coupon books in the sale of certain products. These books were sold to consumers and contained detachable coupons which called for a definite quantity of a given product or a specified money value. As a rule only gasoline, engine distillate, and lubricants were sold by means of coupon books. In the case where the quantity of the product was stipulated, any market fluctuations in the price subsequent to its issuance did not

affect the quantity to be sold in exchange for the coupons. The coupon books that called for a definite money value without specifying the quantities did not exempt the transaction from fluctuations in the market price.

Besides the differences in the coupons noted above there were many other distinguishing features. The Standard Oil Co. issued five different types, the Shell Co. three, and the Union Oil Co. only one type. The coupons of the Associated Oil Co. and of the Union Oil Co. were accepted by dealers handling their products. The different types of coupon books issued are illustrated by those of the Standard Oil Co., which sold the following: (1) Gallonage book, (2) order coupon book, (3) money book, (4) scrip book, and (5) zerolene gallonage book.

The gallonage book called for a definite quantity of gasoline and was issued in 50 and 100 gallon denominations. Each coupon contained in these books called for 1 gallon. This book was accepted only at the point of purchase and was sold to commercial-car operators at 1 cent per gallon off the market price at the time of issuance. The order coupon book was issued to large commercial concerns for use of salesmen or truck operators. No money was paid by the purchaser at the time of its issuance. It called for the delivery of gasoline, engine distillate, and zerolene (a lubricating oil), and the account of the purchaser was charged as the products were delivered at the price current at the time of delivery, less commercial-car discount. The coupons were accepted at any station of the company. The money book contained coupons to the aggregate value of either $10 or $20 and could be used for the purchase of any product sold at the company's stations. The purchase price was paid at the time of issue. No discount was granted and they were usually sold to individual car owners for their convenience. The scrip book was issued in $10 and $20 values, and was similar to the money-order book, except that it contained no coupons, but instead a continuous cumulative series of values, the addends being 5 cents. The zerolene gallonage book was issued for lubricating oil sold under the trade name of zerolene. It contained 20 coupons and each was good for 1 quart. The price was that which obtained at the time of purchase, less the commercial-car discount. It was accepted only at the point of purchase.

The Shell Co. issued gallonage books, scrip books, and lubricating coupon books. This company occasionally withdrew its books from sale, depending upon the condition of the general market. The Union Oil Co. issued only one kind of coupon book, the money-order book, which was good for the purchase of any product at the company's service stations.

Section 3. Distributing agencies.

THE LARGE COMPANIES.—In the Pacific coast territory the different marketing functions involved in wholesaling and retailing of refined petroleum products have been integrated with varying degrees of completeness by the following five companies: Associated Oil Co., General Petroleum Corporation, Shell Co., Standard Oil Co., and the Union Oil Co. During the period 1914–1919 the General Petroleum Corporation was essentially a wholesale distributor of tops, i. e.,

naphtha distillate and fuel oil, but in the last half of 1919 it began to market gasoline, engine distillate, and gas oil at wholesale. As stated in Part I, these five companies occupy a dominating position in the production and refining of crude petroleum, and they are likewise the controlling factors in the purchase of crude petroleum and in the marketing of refined products.

OTHER MARKETERS.—The information secured by the Commission regarding the sales methods of the small marketers shows that some degree of integration between the refining and marketing branches has taken place among them and that the bulk of the products manufactured by them is distributed directly to the retailer or to the ultimate consumer without being handled by a wholesaler. The small refiners have been able to largely eliminate the wholesaler because the products of their refineries are marketed in territory contiguous to their plants. This lends stability to their business and allows them to distribute their products at a minimum expense. On account of the local character of this business, considerations of economy connected with carload shipments lose their importance, thus bringing into play an additional factor that tends to eliminate the middleman in the distribution of the products manufactured by this class of refiners.

Section 4. Purchases of refined products by large companies.

The four large marketing companies purchased comparatively small quantities of refined products from other refineries for distribution within their marketing territory during the period 1914–June 30, 1919. The purchases that were made during this time were made from the smaller refiners in southern California. But during the last months of 1919 and in 1920 the shortage of gasoline was so great that purchases were made from refineries located in Wyoming and in the Mid-Continent oil fields. The Standard Oil Co. secured 14,716,861 gallons of gasoline and naphtha from Wyoming and 3,564,060 gallons from the Mid-Continent refineries during the last six months of 1919, while in the first half of 1920 about 32,000,000 gallons were secured from Wyoming and an additional 3,101,950 gallons from the Mid-Continent field. On June 30 additional purchases aggregating 27,672,900 gallons from Wyoming and 28,750,000 gallons from the Mid-Continent field were undelivered. The quantity of gasoline and naphtha which had been distributed in the Pacific coast territory or which remained to be shipped from Wyoming and the Mid-Continent field on June 30, 1920, by the Standard Oil Co. was slightly larger than its total sales for the first half of 1919.

Section 5. Uses and importance of the principal refined products.

The larger part of the domestic gasoline consumption is used for internal combustion engines in automobiles, motor trucks, motor boats, stationary and portable engines, airplanes, railroad motor cars, farm tractors, and other stationary and portable power equipment. A small proportion is used in the cleaning trade, in the manufacture of paints, varnishes, rubber, and other products requiring a solvent. Engine distillate is also used as a motor fuel, principally by motor boats, tractors, and stationary engines in the mining and smelting industries. Formerly kerosene was used principally for illuminating purposes, but in recent years increasing quantities have been used in internal combustion engines, mainly in farm tractors.

The chief demand for California kerosene is from the Orient and South America, so that the larger part of the production is exported. Gas oil is largely used by public utility companies in the manufacture of gas.

The quantities of the principal refined products sold in the domestic market by the five large marketing companies are shown in the following table:

TABLE 15.—*Quantity of combined domestic sales of the principal refined products by the five large marketing companies, by products, 1918 and 1919.*

Product.	1919		1918	
	Gallons.	Per cent.	Gallons.	Per cent.
Gasoline	220,541,177	52.7	[illegible]	[illegible]
Engine distillate	114,541,409	18.3	111,487,181	23.3
Kerosene	61,466,559	10.3	51,355,764	10.1
Gas oils	35,602,133	5.9	39,235,[illegible]	8.1
Lubricating oils	44,540,895	7.5	35,454,494	10.7
Total	596,808,639	100.0	495,645,734	100.0

The total quantity of the combined sales of the principal refined products made by the five large marketing companies increased from 498,846,000 gallons in 1918 to 596,808,000 gallons in 1919, which represents an increase of nearly 20 per cent. For the two years gasoline constituted 52 per cent of the total quantity and engine distillate 21 per cent; hence these two products, which are essentially motor fuels, represented approximately 73 per cent of the total. Kerosene, which is also used to some extent as a motor fuel, constituted about 10 per cent of the total, gas oil 8 per cent, and lubricants about 9 per cent.

Section 6. Relative importance of marketing companies.

DISTRIBUTION IN THE DOMESTIC MARKET.—The Standard Oil Co. is by far the largest and most important factor in the marketing branch of the petroleum industry of the Pacific coast. It markets petroleum products in larger quantities and distributes them throughout a wider territory than any of the other large companies. The Union Oil Co. ranks second both in the quantity marketed and in the extent of its marketing territory, but for most products its sales are much smaller than those of the Standard. The Associated Oil Co. ranks third, the Shell Co. fourth, while the General Petroleum Corporation was not a factor even in the wholesale distribution of refined products prior to 1919.

Complete information covering the quantity of the principal petroleum products sold by the five large marketing companies is available only for 1918 and 1919. Appendix Tables 8–12 show detailed information for three of the companies for the period 1914–1919. These tables show a large increase in the quantity of each of the principal products sold by these companies in 1919 as compared with 1914. For example, domestic sales of gasoline by the Standard Oil Co. increased from 56,272,000 gallons in 1914 to 194,274,000 gallons in 1919, an increase of 245 per cent; those for the Union Oil Co. increased from 22,878,000 gallons in 1914 to 71,008,000

gallons in 1919, a gain of 210 per cent; while the Associated Oil Co. sold 5,451,000 gallons in 1914 and 38,755,000 gallons in 1919, or an increase of 614 per cent. The relative importance of these five large marketing companies is shown in the following table:

TABLE 16.—*Quantity and proportion of principal petroleum products sold by the five large marketing companies in the domestic market, in gallons, by companies, 1918 and 1919.*

GASOLINE.

Company.	1919		1918	
	Gallons.	Per cent.	Gallons.	Per cent.
Standard Oil Co.	134,272,979	60.6	145,125,554	61.9
Union Oil Co.	71,997,789	32.2	81,012,973	34.6
Associated Oil Co.	26,754,275	12.1	26,695,662	11.3
Shell Co.	14,695,899	4.6	12,871,098	5.5
General Petroleum Corporation	1,924,236	.8		
Total	220,541,177	100.0	235,309,480	100.0

ENGINE DISTILLATE.

Standard Oil Co.	53,265,797	46.5	54,543,259	48.9
Union Oil Co.	36,497,363	32.0	41,000,000	36.8
Associated Oil Co.	11,302,033	10.0	11,000,000	12.5
Shell Co.	4,497,495	3.9	3,000,731	2.8
General Petroleum Corporation	8,982,777	7.6	10,100,743	9.1
Total	114,541,465	100.0	111,442,191	100.0

KEROSENE.

Standard Oil Co.	46,265,412	75.3	46,917,385	75.7
Union Oil Co.	11,385,949	18.3	8,267,624	13.3
Associated Oil Co.	1,213,942	1.9	1,271,956	2.0
Shell Co.	1,000,000	1.5	998,734	1.7
General Petroleum Corporation				
Total	61,865,629	100.0	61,955,704	100.0

LUBRICATING OILS.

Standard Oil Co.	32,000,748	72.4	36,000,000	67.4
Union Oil Co.	7,125,000	16.1	6,000,000	22.4
Associated Oil Co.	600,000	1.4	700,000	1.3
Shell Co.	4,000,000	9.1	3,000,000	18.7
General Petroleum Corporation				
Total	44,540,000	100.0	53,454,454	100.0

The combined sales of gasoline for the five companies increased from 252,290,000 gallons in 1918 to 220,541,000 gallons in 1919, a gain of 27 per cent; engine distillate, which is also used for a motor fuel, increased from 111,442,000 gallons in 1918 to 114,541,000 gallons in 1919, an increase of 3 per cent; the quantity of kerosene sales was 51,310,000 gallons in 1918 and 61,493,000 gallons in 1919, which represents a 20 per cent increase, while the quantity of lubricating oil sales decreased from 53,454,000 gallons in 1918 to 44,541,000 gallons in 1919, or 17 per cent.

The relative importance of the different companies is shown by their proportion of the combined quantity sold by all five companies.

The Standard Oil Co. had 60.8 per cent of the combined quantity of gasoline sales in 1919, the Union Oil Co. 22.9 per cent, the Associated Oil Co. 12.1 per cent, the Shell Co. 4.5 per cent, and the General Petroleum Corporation only 0.6 per cent. As already stated, the General Petroleum Corporation did not manufacture or sell refined petroleum products prior to 1919.

The Standard had 46.5 per cent of engine distillate, the Union 26.9 per cent, the Associated 18.6 per cent, the General 4.4 per cent, and the Shell 3.9 per cent. Three companies showed a decline in their proportion of the combined quantity sold in 1919 as compared with 1918.

The Standard's proportion of the combined quantity of kerosene sold by the large companies was larger than for any other product. In 1919 this company had 78.5 per cent of the total, the Union 18.3 per cent, the Associated 1.9 per cent, and the Shell 1.3 per cent. There was no marked change in the proportions for the different companies from 1918 to 1919.

The Standard Oil Co. is by far the largest factor in the lubricating oil market. In 1919 it had 73.4 per cent of the combined total for the four large companies, the Union was second with 16.1 per cent, the Shell third with 9.1 per cent, while the Associated had only 1.4 per cent. Notwithstanding there was a decrease of 17 per cent in the gallonage of lubricating oil sold in 1919 when compared with 1918, the Standard increased its proportion from 67.4 to 73.4 per cent, the Union from 12.4 to 16.1 per cent, while the Shell shows a decrease from 18.7 to 9.1 per cent of the total for the four companies.

DISTRIBUTION BY STATES.—Complete information regarding the quantity and proportion of the principal petroleum products sold by each of the large marketing companies, by States and Territories, is presented in Appendix Tables 8–12. For three of the companies the data are available for the period 1914–June 30, 1919, while for all companies they are shown for 1918 and the first six months of 1919. The following table shows the relative importance of each company in the distribution of gasoline, engine distillate, kerosene, and lubricating oils in the specified States and Territories:

TABLE 17.—*Proportion of combined quantity of principal refined products sold by each of the large marketing companies in the domestic market, 1918.*

Product and State or Territory.	Standard.	Union.	Associated.	Shell.	Total.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
GASOLINE.					
Arizona	89.0	11.0			100
California	53.1	35.9	11.0	5.1	100
Idaho	(1)			100.0	100
Nevada	72.3	14.3	13.0	.4	100
Oregon	66.3	16.6	12.5	4.6	100
Washington	70.4	14.8		7.0	100
Above six States	60.0	23.4	11.4	4.9	100
Alaska	97.6	2.4			100
Hawaii	93.1	6.9			100
Philippines	82.1		17.9		100
Other domestic		.9	99.1		100
Above Territories	86.3	4.6	8.5		100
Entire territory	61.9	21.6	11.3	5.0	100
ENGINE DISTILLATE.					
Arizona	84.0	16.0			100
California	76.6	22.6	31.3	7.5	100
Idaho	98.3			1.8	100
Nevada	77.4	22.0	6.8	.8	100
Oregon	73.9	11.5	13.0	1.6	100
Washington	85.3	14.6		.1	100
Above six States	45.3	28.7	25.2	5.8	100
Alaska	98.5	1.5			100
Hawaii	93.3	6.6			100
Philippines	97.8		2.2		100
Other domestic		(1)		100.0	100
Above Territories	98.6	1.4	(1)	41.7	100
Entire territory	48.0	18.9	22.0	9.1	100
KEROSENE.					
Arizona	81.2	18.8			100
California	74.2	18.3	4.3	3.5	100
Idaho	100.0				100
Nevada	91.0	8.0	.9	.1	100
Oregon	85.1	13.6	1.0	1.3	100
Washington	87.8	12.1		.1	100
Above six States	78.2	17.6	2.2	1.9	100
Alaska	97.0	3.0			100
Hawaii	97.6	2.4			100
Philippines	93.2		6.8		100
Other domestic	99.5	0.5			100
Above Territories	94.2	1.3	4.5		100
Entire territory	78.7	16.1	2.5	1.7	100
LUBRICATING OILS.					
Arizona	87.0	12.1			100
California	87.9	28.9	4.0	12.2	100
Idaho	94.1			5.9	100
Nevada	87.9	10.9	.8	.6	100
Oregon	78.0	14.6	.4	7.0	100
Washington	72.5	17.6		9.9	100
Above six States	64.9	22.0	2.6	10.5	100
Alaska	98.0	2.0			100
Hawaii	95.5	10.3		4.3	100
Philippines	98.4			1.6	100
Other domestic	66.9	(1)		33.1	100
Above Territories	78.6	.3		20.3	100
Entire territory	67.4	12.4	1.5	18.7	100

[1] Less than one-tenth of 1 per cent.

The Standard Oil Co. was the only company distributing gasoline in every State and Territory of the Pacific coast territory. Its proportion of the combined quantity sold by the large companies for each product in each State or Territory was much larger than for all the other companies combined, except in the case of gasoline in western Idaho and engine distillate in California. Its proportion for gasoline in the different States and Territories in 1918 ranged from 53 per cent in California to 82 per cent in Arizona. The Union Oil Co. ranked second, and its proportion of the combined quantity varied from 15 per cent in Nevada to 26 per cent in California. This company did not sell in Idaho. The Associated Oil Co. was third, and its percentage of the combined quantity ranged from 12 per cent in Nevada to 16 per cent in California, with no sales in Arizona, western Idaho, or Washington. These three companies sold 95 per cent of the combined sales of gasoline. The Shell Co. sold only 5 per cent, which was distributed in California, Nevada, western Idaho, Oregon, and Washington. The Shell Co. sold practically all of the gasoline shipped from California to western Idaho, but the total quantity sold in that State was very small. The Standard Oil Co. sold 93.4 per cent of the shipments to Alaska and Hawaii and the Union Oil Co. the remaining 6.6 per cent. The Standard sold 82.1 per cent of the quantity of gasoline shipped to the Philippines, and the Associated 17.9 per cent.

The Standard Oil Co. had the bulk of the engine distillate business outside of California. Its proportion in the different States ranging from 39 per cent in California to 98 per cent in western Idaho. The Associated Oil Co. was second with a minimum of 6 per cent in Nevada and 31 per cent in California, but it had no sales in Arizona, western Idaho, or Washington. The Union Oil Co. ranked third with 12 per cent in Oregon and 23 per cent in California. It sold engine distillate in every State except western Idaho. The proportion of the combined sales for the Shell Co. varied from 0.3 per cent in Nevada to only 7.2 per cent in California. This company had no sales in Arizona. The Standard and the Union made all of the shipments to Alaska and Hawaii. The Standard's proportion was about 98 per cent. The Standard and Associated made all of the shipments to the Philippines. The Standard's proportion was 97.5 per cent.

The Standard Oil Co. and the Union Oil Co. sold 96.5 per cent of the kerosene distributed in the six States and made all of the shipments to Alaska and Hawaii. The Standard's proportion in different States varied from 75 per cent in California to 100 per cent in western Idaho, while the proportion sold by the Union varied from 8 per cent in Nevada to 20 per cent in California. In Alaska and Hawaii the Standard had about 98 per cent of the total. The Standard sold 90.2 per cent of the kerosene shipped to the Philippines and the Associated the remainder.

Lubricating oils manufactured in California have had a large sale outside of the Pacific Coast States; for example, in 1918 about one-third of the lubricants sold by the Standard Oil Co. and two-thirds of those sold by the Shell Co. were shipped to States not included in

the Pacific coast territory, and lubricants and lubricating stock from east of the Rocky Mountains were sold in the Pacific coast territory. As already stated, the Standard Oil Co. had 67 per cent of the combined lubricating oil business of the large companies. Its share of the business varied from 58 per cent in California to 94 per cent in western Idaho. The Shell Co. ranked second in the total proportion of its sales in the Pacific coast territory. In the Pacific Coast States its proportion of the total quantity sold varied from 0.6 per cent in Nevada to 12 per cent in California. This company did not make any sales in Arizona in 1918. The Union Oil Co. was third, with sales ranging from 11 per cent of the combined quantity sold in Nevada to 26 per cent in California. In Alaska and Hawaii the Standard had 98 and 85.5 per cent, respectively, of the business, the Union Oil Co. supplied 2 per cent in Alaska and 10.2 per cent in Hawaii and the Shell Co. the remainder. The Standard was the only large California company that sold lubricants for shipment to the Philippines.

Section 7. Exports of refined products.

Complete information was furnished by the large marketing companies showing the quantity of the principal petroleum products exported for 1918 and 1919, while the Standard Oil Co., the Union Oil Co., and the Associated Oil Co. furnished complete information for the period 1914–1919. The companies furnishing the information for the entire period made the bulk of the exports for all products, and this information is presented in Appendix Tables 8–12. These tables show that domestic sales of gasoline increased quite uniformly from 84,800,000 gallons in 1914 to 320,500,000 gallons in 1919, or 279 per cent; the quantity exported fluctuated greatly, varying from 3,600,000 gallons in 1915 to 42,600,000 gallons in 1918, while in the following year they declined to 22,200,000 gallons. The domestic sales of kerosene increased uniformly from 35,600,000 gallons in 1914 to 61,500,000 gallons in 1919, a gain of 73 per cent. Kerosene exports varied from 154,500,000 gallons in 1914 to a minimum of 60,000,000 gallons in 1918, while they increased to 173,000,000 gallons in 1919. The proportion of export sales varied from 81 per cent in 1914 to 54 per cent in 1918, while in 1919 they were almost 74 per cent of the total. The bulk of the kerosene manufactured by the large refiners is exported, while in 1919 about one-fourth of the lubricating oils were shipped to foreign countries. Gasoline and engine distillate exports constituted 13 per cent of the total in 1918 and 5 per cent in 1919. The following table shows the quantities and proportions of the domestic and export sales of the principal refined products made by the large California marketing companies combined, 1914–1919:

TABLE 18.—*Combined quantities and proportions of the sales of principal refined products by the large California marketing companies in the domestic and export markets, 1914–1919.*

Product and year.	Domestic.		Export.		Total consumption.
	Gallons.	Per cent.	Gallons.	Per cent.	
GASOLINE.					
1914	84,881,000	93.1	6,271,000	6.9	90,852,000
1915	123,234,000	97.2	3,621,000	2.8	127,455,000
1916	147,895,000	89.8	16,810,000	10.2	164,705,000
1917	198,248,000	84.1	38,662,000	15.9	230,911,000
1918	225,403,000	85.6	42,630,000	14.4	268,033,000
1919	220,541,000	91.5	22,153,000	6.5	242,694,000
ENGINE DISTILLATE.					
1914	41,944,000	90.8	4,231,000	9.2	46,175,000
1915	82,924,000	91.4	4,974,000	5.6	87,898,000
1916	93,613,000	92.6	7,449,000	7.4	100,061,000
1917	93,555,000	82.8	19,173,000	16.2	113,033,000
1918	111,442,000	89.4	13,206,000	10.6	124,651,000
1919	114,542,000	98.9	1,218,000	1.1	115,760,000
KEROSENE.					
1914	35,628,000	18.7	154,528,000	81.3	190,155,000
1915	56,727,000	28.3	92,987,000	71.7	128,704,000
1916	40,291,000	35.2	74,427,000	64.8	114,613,000
1917	47,998,000	26.7	82,436,000	63.3	130,134,000
1918	31,310,000	46.1	39,977,000	53.9	111,287,000
1919	61,460,000	26.2	173,055,000	73.8	234,515,000
LUBRICATING OILS.					
1914	13,618,000	84.7	2,458,000	15.3	16,076,000
1915	18,400,000	83.4	3,669,000	16.6	22,143,000
1916	26,690,000	78.8	7,116,000	21.5	33,145,000
1917	33,578,000	80.6	8,092,000	19.4	41,665,000
1918	25,456,000	79.3	13,295,000	20.2	47,651,000
1919	44,541,000	75.4	14,551,000	24.6	59,092,000
GAS OIL.					
1914	28,482,000	95.9	1,231,000	4.1	29,713,000
1915	28,282,000	97.7	610,000	2.3	28,892,000
1916	29,270,000	95.3	2,127,000	6.8	31,397,000
1917	35,214,000	87.9	4,866,000	12.1	37,780,000
1918	30,240,000	88.0	4,116,000	12.0	34,356,000
1919	45,992,000	93.4	3,236,000	6.6	49,228,000

The above statistics cover three of the five large marketing companies for the entire period and all five for 1918 and 1919. The quantity of gasoline exported in 1919 was only about one-half as large as that shipped to foreign lands in 1918. Engine distillate shows a much greater decline, from about 13,200,000 gallons in 1918 to only 1,200,000 gallons in 1919. This reduction in exports was probably due to the shortage of gasoline on the Pacific coast during the last half of 1919. The exports of gas oil and lubricating oils remained practically constant during 1918 and 1919. The following table shows the proportion of the combined exports of the principal refined products exported by each of the four large marketing companies in 1918 and 1919:

TABLE 19.—*Proportion of the principal refined products exported by each of the large marketing companies in California, 1918 and 1919.*

Company.	Gasoline.		Engine distillate.		Kerosene.		Lubricating oils.	
	1918	1919	1918	1919	1918	1919	1918	1919
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Standard Oil Co.	76	75	82	63	96	92	65	79
Union Oil Co.	6	3	1	7	1	1	1	3
Associated Oil Co.	14	16	7	25	3			
Shell Co.	4	6				7	5	21
Total	100	100	100	100	100	100	100	100

The Standard Oil Co. was the largest factor in the export market for all of the principal refined products. The Associated Oil Co. was the second largest exporter of motor fuels in 1918 and 1919, but its exports of kerosene and lubricants were very small. The Shell Co. ranked third for gasoline in 1919, but was second for lubricants in both years. The Union Oil Co. exported small quantities in 1918 and 1919.

CHAPTER V.

PRICES OF GASOLINE AND KEROSENE.

Section 1. Character and source of price information.

CHARACTER OF PRICES.—In the domestic market there are three different prices for gasoline commonly quoted on the Pacific coast, (1) the retail price for pleasure automobiles; (2) a 1-cent per gallon discount from the retail price for commercial automobiles and trucks; and (3) a 2-cent per gallon discount from the retail price for garages and other retailers. During January, 1920, the gasoline sales of the Standard Oil Co. were divided as follows: 22 per cent at the full retail price, 26 per cent at a discount of 1 cent per gallon, and 52 per cent at a discount of 2 cents per gallon. The retail or service station prices for gasoline are presented in this report.

There are two prices for kerosene, (1) the wholesale or tank-wagon price to retailers, and (2) the retail price. Gasoline and kerosene are sometimes sold in large quantities, f. o. b. refinery, for either domestic or export trade, but the prices for such transactions are not commonly quoted. The wholesale or tank-wagon prices of kerosene are presented because satisfactory retail prices could not be secured. The domestic demand for kerosene is largely met through deliveries by tank wagons to retail storekeepers, who in turn sell in small quantities to the consumers.

SOURCE OF PRICE INFORMATION.—All of the prices for both gasoline and kerosene on the Pacific coast were obtained directly from the four large marketing companies. Prior to 1919 the General Petroleum Corporation was not a factor in the wholesale or retail gasoline and kerosene market. The prices presented for gasoline and kerosene for Kansas City were obtained from trade journal quotations.

Section 2. Retail prices of gasoline.

PRICES PRIOR TO 1914.—Gasoline prices are shown in Appendix Table 13 for the period 1914–1920, but in order to show the situation at the beginning of this period a brief description of the general course of gasoline prices before 1914 is presented. In 1912 the Standard Oil Co. and the Union Oil Co. were the only large marketers of gasoline on the Pacific coast, although there were a number of small independent refiners at Los Angeles and San Francisco. The Associated Oil Co. was not then in the gasoline marketing business and the Shell interests had not yet entered the Pacific coast market. The Shell Co. (Inc.), the successor of the American Gasoline Co., was chartered in New York on August 30, 1912, and began marketing petroleum products in California. A cargo of gasoline had been imported from the East Indies by the Shell interests. It

had also acquired a refinery site at Martinez on San Francisco Bay, and had applied for a pipe-line franchise. The Standard Oil Co. was at this time building a new refinery at Los Angeles.

By the fall of 1912 there were from 12 to 15 small independent refineries located in the vicinity of Los Angeles, and there were a number at points around San Francisco Bay. Some of the small Los Angeles refineries were connected by pipe line with the local oil fields, while others got their supply of crude petroleum by tank cars. All of the small San Francisco Bay refineries obtained their crude supply by tank car. In December, 1912, some of the small wholesalers at Los Angeles cut the price of gasoline. This, it was alleged, was done to meet the competition of the Indian & Colonial Co., which had recently started selling gasoline in Los Angeles, and in order to secure trade had cut under the existing market price. During the spring of 1913 the cutting of prices continued.

CHANGES IN PRICES, 1914–1920.—By 1914 the Associated Oil Co. had become a marketer of gasoline. The Standard Oil Co., however, was still by far the largest factor and the Union Oil Co. was second in importance. The General Petroleum Co., the predecessor of the General Petroleum Corporation, was not a distributor of gasoline. The retail market prices of gasoline at Los Angeles and San Francisco, Calif., Portland, Oreg., Seattle, Wash., Phoenix, Ariz., and Reno, Nev., for the period 1914–1920 are shown in Appendix Table 18.

The retail prices of gasoline continued to decline during 1914, the last decrease occurring October 22, at which time the prices at San Francisco, Seattle, and Portland were 3 cents per gallon below the January price. On October 8, 1914, the Standard Oil Co. began operating the service stations which it had purchased from the National Supply Co. The entrance of the Standard into the retail trade resulted in establishing the margin between the retail and the wholesale price at 2 cents per gallon. For the first 10 months of 1914 the retail margin had been at times as large as 9½ cents per gallon. In October, 1914, the retail price of gasoline had been cut to 13½ cents per gallon in San Francisco and to 13 cents per gallon in Portland and Seattle.

On February 2, 1915, the retail prices of gasoline were reduced 1 cent per gallon, making the price 11½ cents at San Francisco and 12 cents per gallon at Seattle and Portland. On July 7 there was another general reduction of one-half cent per gallon. On September 23 prices were advanced 1 cent per gallon (see p. 113), while there were two advances of 1 cent per gallon in October and a further increase of 1 cent per gallon in November. This made the fourth advance in a little over two months, amounting in all to a total of 4 cents per gallon. There were four general advances of 1 cent per gallon in the prices of gasoline during the first part of 1916, each advance becoming effective at practically the same date for all of the large marketing companies. These dates were January 5, February 7 and 15, and April 6. The advance of February 15 was the last one that was made exactly simultaneously by all the

companies until June 10, 1919. The advance on April 6 made the retail price of gasoline 8 cents per gallon higher than it had been at its lowest point, only seven months before, or from 3½ to 4½ cents per gallon higher than the price on January 1, 1914, at most points. In August, 1916, the price at Portland, which up to this time had been the same as that at Seattle, was advanced 1 cent above the Seattle price. On December 2 and 3 there was a general advance in gasoline prices of 1 cent per gallon.

During 1917 there was no change in the retail prices of gasoline in San Francisco and Seattle, but the price in Portland was reduced 1 cent per gallon in May, which again made the prices the same in Portland and Seattle. In March, 1918, the retail prices were advanced one-half cent per gallon at both Portland and Seattle. In the spring of 1918 the Oil Division of the United States Fuel Administration, in cooperation with the industry, stabilized the market price for both crude and refined petroleum products. An increase of 25 cents per barrel was authorized for crude petroleum and 15 cents per barrel for fuel oil, while the Fuel Administration looked with disfavor upon any increase in the prices of refined products, consequently no advances were made at a time when the prices of most other commodities were advanced. The general increase of one-half cent per gallon, which was made in August, was authorized by the Fuel Administration to cover an advance in freight rates. The control of the United States Fuel Administration was terminated December 1, 1918.

In March, 1919, the retail price at Portland was again increased 1 cent per gallon above the price at Seattle by all companies except the Associated Oil Co., and in June there was a general advance of 1 cent per gallon in the retail price of gasoline throughout the entire Pacific coast territory. A shortage of gasoline developed in the latter part of the year which necessitated the purchase of large quantities of gasoline from Mid-Continent refineries for distribution in the southern part of the Pacific coast territory; while purchases were made in Wyoming for shipment into the Pacific Northwest. The Standard Oil Co. and the Union Oil Co. advanced the price of gasoline 1½ cents per gallon at Portland in December, on account of the legal requirement that gasoline sold within that State must be 56° Baumé or over.

On January 7, 1920, the Shell Co. made its price of gasoline in Portland the same as the Standard and Union. The Associated Oil Co. increased its price one-half cent per gallon in Portland on January 30, 1920, and made another increase of 1 cent per gallon on February 6. With this last increase the Associated was still 1 cent per gallon below the other companies. In March, 1920, there was a general increase of 2 cents per gallon throughout the entire Pacific coast territory (see p. 88). This increase was effective March 17 for all companies except the Associated Oil Co. The Associated increased its prices the following day, March 18, and at this time it made its price in Portland the same as the other companies. The Portland price was then 27 cents per gallon, or 2½ cents above the Seattle price. Dur-

ing the last week in July and the first week in August further advances were made in the retail prices of gasoline, which, compared with the prices on March 17, amounted to an increase of 3½ cents per gallon in San Francisco and Seattle and of 2 cents per gallon in Portland. At this time the price advances were first made by the Shell Co., then by the Union Oil Co., and then by the Standard Oil Co. The circumstances under which these advances were made according to a trade journal were as follows:[1]

> Effective August 4, the Union Oil Co. of California advanced the price of gasoline from 25 to 27 cents a gallon with the published announcement that the importing[2] of additional supplies from the Eastern fields made it absolutely essential to increase the price. Following this lead, all members of the Independent Marketers Association at a meeting held Wednesday decided to raise the price to the same standard. The Standard Oil Co. to-day (August 6) met the price of 27 cents in Los Angeles and San Francisco.
>
> Every previous advance during the past has been established by the Standard, which as a natural result has stood the brunt of criticism on the part of the press and the public.

The advances in August, which were the last ones in 1920, made the total advances in retail prices during the year 5½ cents per gallon at San Francisco and Seattle. This was the largest advance ever made during any one calendar year, the next having been a total of 5 cents per gallon during 1916.

The shortage in gasoline on the Pacific coast, which had been growing for some time, became so acute during the summer of 1920 that the rationing of gasoline was inaugurated at the service stations of several of the large marketing companies. Automobiles were allowed from 2 to 5 gallons at a time, and then only when the gasoline already in their tanks was low. The rationing applied to pleasure cars only, commercial cars not being affected. On account of the shortage of gasoline, large orders were placed with Mid-Continent and Wyoming refiners during the summer of 1920 by some of the California marketing companies who could not supply their trade from their production.

MONTHLY AVERAGE PRICES.—As already shown, the changes in the retail market prices for gasoline have been made by the different companies at approximately the same time. As the Standard Oil Co. is the largest marketer of gasoline, its prices have been used as a basis for monthly average prices at three important Pacific coast cities (see p. 59). The following table shows the monthly average prices of gasoline at San Francisco, Portland, and Seattle:

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[1] Oil and Gas Journal, Aug. 13, 1920, p. 44.

[2] By "importing" is meant shipments into California from other sections of the United States.

TABLE 20.—*Monthly average retail prices of gasoline per gallon, 1914–1921.*

Date.	San Francisco.	Portland.	Seattle.
1914.			
January	$0.165	$0.160	$0.160
February	.165	.160	.160
March	.165	.160	.160
April	.150	.160	.160
May	.165	.155	.165
June	.150	.155	.165
July	.145	.150	.150
August	.145	.150	.150
September	.127	.140	.140
October	.122	.127	.127
November	.126	.130	.130
December	.135	.130	.120
1915.			
January	.125	.120	.120
February	.115	.120	.120
March	.115	.130	.120
April	.115	.120	.120
May	.115	.120	.120
June	.115	.120	.120
July	.121	.116	.116
August	.110	.115	.115
September	.113	.113	.113
October	.121	.120	.120
November	.141	.146	.146
December	.150	.154	.154
1916.			
January	.150	.154	.154
February	.170	.170	.170
March	.150	.165	.165
April	.150	.150	.150
May	.150	.150	.150
June	.150	.150	.150
July	.150	.150	.150
August	.150	.150	.150
September	.150	.165	.165
October	.150	.165	.165
November	.150	.165	.165
December	.200	.215	.200
1917.			
January	.200	.200	.200
February	.200	.215	.215
March	.200	.215	.215
April	.200	.215	.215
May	.200	.211	.211
June	.200	.205	.205
July	.200	.200	.200
August	.200	.205	.205
September	.200	.205	.205
October	.200	.205	.205
November	.200	.205	.205
December	.200	.205	.205

Date.	San Francisco.	Portland.	Seattle.
1918.			
January	$0.200	$0.205	$0.205
February	.200	.205	.205
March	.200	.205	.205
April	.200	.210	.210
May	.200	.210	.210
June	.200	.210	.210
July	.200	.210	.210
August	.204	.214	.214
September	.205	.215	.215
October	.205	.215	.215
November	.205	.215	.215
December	.205	.215	.215
1919.			
January	.205	.215	.215
February	.205	.215	.215
March	.205	.220	.215
April	.205	.220	.215
May	.205	.220	.215
June	.213	.222	.215
July	.213	.222	.215
August	.215	.225	.215
September	.215	.225	.215
October	.215	.225	.215
November	.215	.225	.215
December	.215	.243	.215
1920.			
January	.215	.220	.215
February	.215	.220	.215
March	.215	.220	.215
April	.215	.220	.215
May	.215	.220	.215
June	.215	.220	.215
July	.215	.220	.215
August	.234	.238	.237
September	.270	.270	.270
October	.270	.270	.270
November	.270	.270	.270
December	.270	.270	.270
1921.			
January	.270	.270	.270
February	.270	.270	.270
March	.270	.[1]300	.270
April	.270	.[1]300	.270
May	.270	.[1]277	.270
June	.250	.[1]250	.250
July	.250	.[1]250	.250
August	.231	.[1]231	.231
September	.220	.[1]220	.220
October	.220	.[1]220	.220
November	.220	.[1]220	.[2]220
December	.220	.[1]220	.[2]220

[1] Includes a tax of 2 cents per gallon.

[2] Includes a tax of 1 cent per gallon.

Appendix Table 14 shows also, in addition to the above, index numbers. The above monthly average prices were obtained by taking the announced prices of the Standard Oil Co. for the number of days they were in effect. The Seattle price was one-half cent per gallon higher than that for San Francisco from January, 1914, to March, 1918, and from April, 1918, until August, 1921, it was 1 cent higher. Since August, 1921, a State tax of 1 cent per gallon increased the margin to 2 cents per gallon. There was considerable fluctuation, however, between the Portland and the San Francisco prices. From January,

1914, to July, 1916, the difference was one-half cent per gallon; from August, 1916, to May, 1917, the Portland price was 1½ cents higher than that for San Francisco; beginning with June and continuing until March, 1918, the margin between the two was one-half cent again; in the following month the Portland price was again 1 cent higher, and this difference was maintained until March, 1919. Beginning with April, 1919, and continuing throughout November the Portland price was 2 cents above that for San Francisco. In January, 1920, the margin was 3½ cents, and that difference was maintained to May, while from June, 1920, until March, 1921, it was 3 cents, after which time a State tax of 2 cents per gallon increased the margin to 3 cents per gallon. As already stated, the large margin in 1920 was due to the Baumé requirements of the Oregon State law.

The monthly average retail prices for Portland and Seattle were identical from January 1, 1914, through July, 1916; after the latter date the Portland price was 1 cent in excess of the Seattle price through April, 1917. Beginning with June, 1917, they were again identical in both cities until March, 1919, and from April through November of the same year the Portland price again exceeded that for Seattle by 1 cent per gallon. From January to April, 1920, the Portland price exceeded that for Seattle by 2½ cents per gallon, while from June, 1920, until March, 1921, the excess for Portland was again 1 cent per gallon. The Oregon State tax of 2 cents per gallon became effective earlier than the Washington tax, and as a result the Portland price was 2 cents per gallon higher than the Seattle price from March to July, inclusive, after which time it was 1 cent per gallon greater.

San Francisco and Kansas City prices.—San Francisco is one of the largest gasoline markets in the Pacific coast territory and Kansas City is one of the largest markets near the Mid-Continent oil fields. The Mid-Continent and California oil fields are so distant from each other that shipments of gasoline have been made from one region to the other only in times of acute shortage or when the margin between prices in the two sections was much wider than usual. For example, early in 1916, when there was a shortage of gasoline east of the Rocky Mountains and California had scarcely emerged from the 1914 overproduction, some "tops," i. e., unfinished naphtha distillates, were shipped from California to Mid-Continent refiners, and in 1919 and 1920, during the shortage in California, shipments of gasoline were made by the Mid-Continent and Wyoming refiners to the California marketing companies, and again in the spring of 1921 gasoline prices were so low at Mid-Continent refineries that shipments were made to the southern part of the Pacific coast territory. On the whole, however, the prices of gasoline on the Pacific coast and in the Mid-Continent territory have had little effect upon each other. The following table shows the movements of the monthly average tank-wagon or wholesale prices of gasoline at San Francisco and Kansas City:

TABLE 21.—*Monthly average wholesale tank-wagon prices of gasoline per gallon at San Francisco and Kansas City, 1914–1921.*

Date.	San Francisco.	Kansas City.	Date.	San Francisco.	Kansas City.
1914.			1918.		
January	$0.145	$0.140	January	$0.220	$0.210
February	.145	.135	February	.220	.210
March	.145	.135	March	.220	.210
April	.145	.130	April	.220	.210
May	.145	.125	May	.220	.210
June	.140	.120	June	.220	.210
July	.135	.105	July	.220	.210
August	.135	.105	August	.224	.220
September	.127	.103	September	.235	.220
October	.122	.105	October	.235	.220
November	.105	.105	November	.235	.220
December	.105	.100	December	.235	.220
1915.			1919.		
January	.105	.105	January	.235	.220
February	.095	.105	February	.235	.220
March	.095	.095	March	.235	.220
April	.095	.095	April	.235	.220
May	.095	.095	May	.235	.220
June	.095	.095	June	.227	.220
July	.091	.095	July	.235	.215
August	.090	.095	August	.235	.210
September	.092	.095	September	.235	.210
October	.111	.105	October	.235	.210
November	.121	.115	November	.235	.210
December	.120	.120	December	.235	.214
1916.			1920.		
January	.139	.128	January	.235	.216
February	.153	.145	February	.235	.221
March	.160	.160	March	.265	.248
April	.168	.170	April	.315	.262
May	.170	.170	May	.315	.262
June	.170	.170	June	.315	.262
July	.170	.170	July	.315	.262
August	.170	.170	August	.344	.262
September	.170	.168	September	.350	.265
October	.170	.158	October	.350	.265
November	.170	.148	November	.350	.265
December	.160	.140	December	.350	.265
1917.			1921.		
January	.160	.140	January	.320	.240
February	.160	.140	February	.320	.210
March	.160	.140	March	.320	.210
April	.160	.138	April	.320	.210
May	.160	.140	May	.302	.195
June	.160	.140	June	.320	.192
July	.160	.140	July	.320	.197
August	.160	.140	August	.311	.188
September	.160	.228	September	.310	.157
October	.160	.228	October	.310	.148
November	.160	.228	November	.310	.178
December	.160	.228	December	.310	.182

The comparison between San Francisco, Portland, and Seattle was given for retail service-station prices, while the above table gives the wholesale tank-wagon prices. The movement of the monthly average prices in the above table is shown graphically in Chart 4, opposite page 72. The index numbers of these prices are also shown in Appendix Table 15, in order to facilitate the comparison of the exact relative movement in the two markets.

The monthly average wholesale tank-wagon prices of gasoline at the two cities differed only one-half cent per gallon in January, 1914, the prices being 14½ cents per gallon at San Francisco and 14 cents per gallon at Kansas City. Early in 1914 they declined in both cities, but to an unequal extent, the price at San Francisco becoming slightly lower than that at Kansas City from February to June,

1915, after which the Kansas City price was lower until November. The prices at both cities reached their lowest point during the summer of 1915, the average monthly price at San Francisco declining to 9 cents per gallon and that at Kansas City to 8.8 cents per gallon. From that time on the prices increased at both places, except for a decline of 3 cents per gallon at Kansas City during the latter part of 1916, which was entirely overcome early in 1917. From February, 1917, to the end of 1920 the wholesale tank-wagon price of gasoline at Kansas City was from three-tenths of 1 cent to 4.7 cents per gallon higher than at San Francisco. The increase in price from January, 1914, was likewise greater in Kansas City. The increase in San Francisco was 10½ cents per gallon and at Kansas City 12½ cents per gallon, or a gain of 72 per cent in the former city and of 89 per cent at Kansas City. In 1921 prices declined very rapidly to the January, 1916, level in the Mid-Continent territory, while in San Francisco there was no change until May and a second decline in August, which made San Francisco prices only slightly less than those of July, 1920.

Section 3. Wholesale price of kerosene.

PACIFIC COAST PRICES.—The domestic consumption of kerosene in the Pacific coast territory is not nearly as large as that for gasoline, and the proportion of the total quantity sold in the home market is small compared with that exported. On account of the comparatively small domestic demand the price changes during the period have been influenced more by conditions in the export market than by conditions in the home market. The prices presented in this section are the monthly average wholesale tank-wagon prices. As San Francisco is the most important domestic market for kerosene on the Pacific coast, the monthly average prices for that city are presented in the following table:

TABLE 22.—*Monthly average wholesale tank-wagon prices of kerosene per gallon at San Francisco, 1914–1921.*

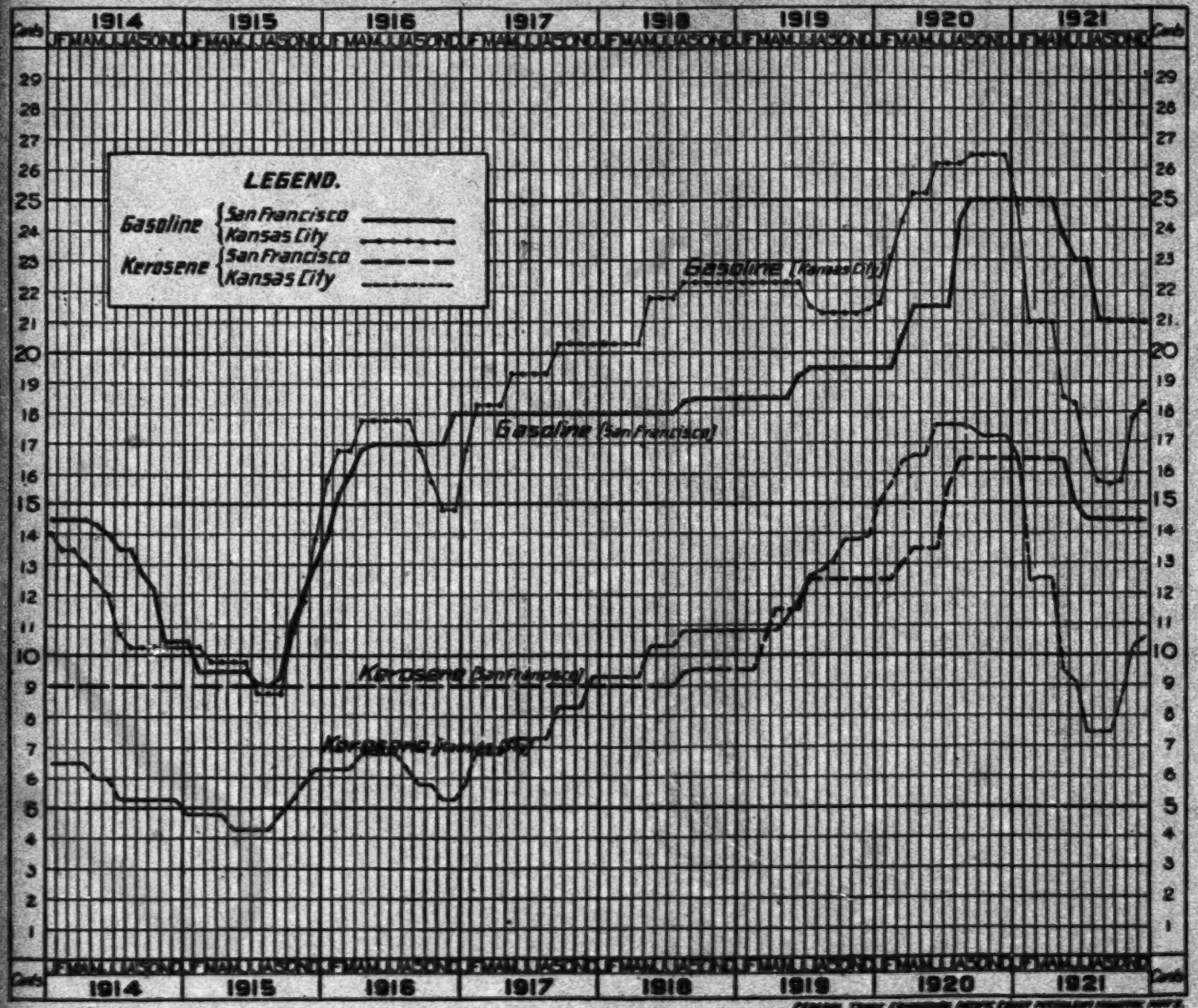
Date.	Tank-wagon price.	Index number.
January, 1914–July, 1916	$0.090	100
August, 1916	.091	101
September, 1916–February, 1919	.092	102
March, 1919	.105	117
April, 1919–June, 1919	.115	128
July, 1919–Feb. 1920	.125	139
March, 1920	.130	144
April, 1920–June, 1920	.135	150
July, 1920	.132	147
August, 1920–May, 1921	.105	117
June, 1921	.120	133
July, 1921[1]	.146	162

[1] No further change during 1921.

The domestic wholesale prices of kerosene have been very stable. The price of 9 cents per gallon was quoted first in July, 1912, and continued unchanged until July, 1918, a period of six years. Kerosene was the only petroleum product that did not decline in price during 1914 and 1915. The wholesale domestic gasoline prices declined 5½ cents per gallon from January, 1914, to August, 1915, when

Chart 4 MONTHLY AVERAGE TANK-WAGON PRICES

OF GASOLINE AND KEROSENE IN CENTS PER GALLON AT SAN FRANCISCO AND KANSAS CITY, 1914–1921



the wholesale price of both gasoline and kerosene became exactly the same, namely, 9 cents per gallon. Beginning in September, 1915, gasoline prices began to increase rapidly until they were 18 cents per gallon in December, 1916, while the wholesale price of kerosene remained at 9 cents per gallon.

The first increase in the domestic wholesale price of kerosene was in August, 1918, when it increased one-half cent per gallon, and in 1919 there was an increase of 3 cents per gallon, while during 1920 there was a further increase of 4 cents per gallon, making a total increase of 7½ cents, or 83 per cent, at the end of 1920, as compared with January, 1914. The increase in the prices of kerosene during 1919 and 1920 was due largely to the revival of the export trade. The movement of the wholesale kerosene prices is graphically presented in Chart 4, opposite page 72. Kerosene prices remained at the high 1920 level through May, 1921. In June there was a reduction of 2 cents per gallon.

San Francisco and Kansas City prices.—The wholesale tank-wagon prices at San Francisco show the domestic price movements for kerosene produced in the California field, while those for Kansas City show the price movement for the Mid-Continent field. The bulk of the California production is sold for export, while most of that produced by the inland refineries in the Mid-Continent field is sold in the domestic market, consequently the price changes at San Francisco reflect in a large part the export market conditions, while those at Kansas City are influenced principally by the domestic supply and demand. The monthly average wholesale prices of kerosene at Kansas City and San Francisco are shown in the following table:

Table 23.—*Monthly average wholesale tank-wagon prices of kerosene per gallon at San Francisco and Kansas City, 1914–1921.*

Date.	San Francisco.	Kansas City.	Date.	San Francisco.	Kansas City.
1914.			1916.		
January	$0.090	$0.065	January	$0.090	$0.060
February	.090	.065	February	.090	.060
March	.090	.065	March	.090	.060
April	.090	.065	April	.090	.060
May	.090	.060	May	.090	.060
June	.090	.060	June	.090	.060
July	.090	.060	July	.090	.060
August	.090	.060	August	.090	.060
September	.090	.060	September	.090	.060
October	.090	.060	October	.090	.060
November	.090	.060	November	.090	.065
December	.090	.060	December	.090	.065
1915.			1917.		
January	.090	.045	January	.090	.060
February	.090	.045	February	.090	.060
March	.090	.045	March	.090	.060
April	.090	.045	April	.090	.060
May	.090	.043	May	.090	.060
June	.090	.043	June	.090	.073
July	.090	.043	July	.090	.073
August	.090	.043	August	.090	.073
September	.090	.043	September	.090	.073
October	.090	.053	October	.090	.083
November	.090	.058	November	.090	.083
December	.090	.068	December	.090	.083

TABLE 23.—*Monthly average wholesale tank-wagon prices, etc.*—Continued.

Date.	San Francisco.	Kansas City.	Date.	San Francisco.	Kansas City.
1918.			1920.		
January	$0.090	$0.093	January	$0.125	$0.180
February	.090	.093	February	.125	.186
March	.090	.093	March	.130	.184
April	.090	.093	April	.135	.186
May	.090	.103	May	.135	.186
June	.090	.103	June	.135	.176
July	.090	.103	July	.155	.170
August	.094	.108	August	.165	.170
September	.095	.108	September	.165	.175
October	.095	.108	October	.165	.173
November	.095	.108	November	.165	.173
December	.095	.108	December	.165	.172
1919.			1921.		
January	.095	.108	January	.165	.166
February	.095	.108	February	.165	.134
March	.105	.108	March	.165	.132
April	.115	.108	April	.165	.123
May	.115	.123	May	.165	.086
June	.115	.115	June	.160	.091
July	.125	.126	July	.145	.075
August	.125	.128	August	.145	.075
September	.125	.131	September	.145	.075
October	.125	.138	October	.145	.086
November	.125	.138	November	.145	.102
December	.125	.130	December	.145	.105

The monthly average wholesale prices of kerosene at the two cities were relatively far apart in January, 1914, the San Francisco price being 9 cents per gallon and the Kansas City price 6¼ cents per gallon. The San Francisco price remained at 9 cents per gallon until July, 1918, while the Kansas City price, after considerable fluctuation, went above the 9-cent level in December, 1917, and although the San Francisco price began to increase in August, 1918, the Kansas City price remained above the San Francisco price, except for two months in the first half of 1919, from December, 1917, to February, 1921. Beginning with February, 1921, the San Francisco price has been higher. The average wholesale market prices at the two cities in December, 1920, was 17.2 cents per gallon at Kansas City and 16½ cents at San Francisco, which represented an increase of 10.7 cents per gallon and 7½ cents per gallon, respectively, as compared with the prices in January, 1914. This represented an increase of 83 per cent in San Francisco and of 165 per cent in Kansas City. In 1921, Mid-Continent prices declined very rapidly to 7½ cents per gallon by July, which was practically the same as the July, 1917, price, while in San Francisco kerosene prices were only reduced 2 cents per gallon. The movement of the monthly average wholesale tank-wagon prices in the above cities is graphically presented in Chart 4, opposite page 72. Appendix Table 16 shows these prices with index numbers.

CHAPTER VI.

RESTRICTION OF COMPETITION BY THE LARGE MARKETING COMPANIES.

Section 1. Origin of inquiry and sources of information.

RESOLUTION DIRECTS INQUIRY REGARDING COMBINATIONS.—The resolution directing the investigation of the Pacific coast petroleum industry requested information as to the causes of the advances in the market prices of the various petroleum products covering the period 1914–1919. It specifically named the Standard Oil Co., the Union Oil Co., and the General Petroleum Corporation, and requested information concerning the activities of these companies "and other companies," and also directed the Commission "to report to the Senate what, if any, combinations in restraint of trade between those engaged in this business or unfair competition on the part of any of these or other agencies engaged in said business have existed during the said period or do exist at the present time, and if such combinations, restraint or unfair competition have existed or do exist, what, if any, effect the same have had upon the market price of fuel oil, gasoline, and other petroleum products, especially on the Pacific coast, and especially with reference to the price charged to the ultimate consumer of the same."

SOURCES OF INFORMATION.—In order to secure the facts regarding the activities of all of the large companies in marketing petroleum products, interviews were had with those in a position to know the facts regarding competitive conditions, and the records and files of the large companies, as well as those of members of the Independent Petroleum Marketers' Association, were examined to secure documentary evidence bearing on such activities since January 1, 1914. It was not possible to make a complete examination of the correspondence files of the Standard Oil Co. for the period 1914–1919, which is the period named in the resolution directing the inquiry. Only part of the records called for by agents of the Commission had been preserved by the company. The records called for which had not been preserved included the correspondence of the fuel oil division of the sales department at the main office in San Francisco, and the correspondence of the sales stations at Los Angeles, Calif., and Phoenix, Ariz., prior to January 1, 1918. It appears that these records were destroyed during January, February, and March, 1921. There was apparently no general company order covering the destruction of records, but each department made its own regulations. At various times from December, 1917, to January 21, 1921, circulars were issued in the sales department stating that correspondence should be preserved for a certain length of time, in most cases this time was given as 3 years, and that the older correspondence should be destroyed. Apparently the destruction of

records in 1921 was the result of a circular letter issued January 21, 1921, by L. T. Haskell, auditor of the sales department. The circular contained the following paragraphs:

> Correspondence to and from the Home Office with the exceptions noted below, will be destroyed at the end of each three years. That is, on January 1st, 1921, the correspondence up to and including December 1917 would be destroyed.
>
> Letters outlining policies to be preserved indefinitely.
>
> Numbered letters on policies and accounting to be preserved indefinitely.

In order to afford the members of the Independent Petroleum Marketers' Association and the large marketing companies an opportunity to explain statements in letters or other documents which apparently indicated agreements or understandings concerning prices or trade practices, the Commission submitted memoranda to the secretary of the association, to the presidents of the Associated Oil Co., the Standard Oil Co., the Union Oil Co., and to H. S. Botsford, manager of the Puente Oil Co. The explanations of the above-named companies are given in Exhibits 1–3 and Exhibit 21. On October 7, 1921, an informal hearing was held with H. H. Maxson, secretary of the association, at which each point in the Commission's memoranda was discussed in detail. The stenographic report of the hearing as well as the written reply of Mr. Maxson is presented in Exhibit 4.

Section 2. Importance of large companies.

POSITION OF STANDARD.—In 1919 the five large oil companies and allied companies produced and purchased approximately 90 per cent of the California crude petroleum, they owned and operated the pipe lines through which this crude was transported, and they refined and marketed about 90 per cent of the refined products produced and sold on the Pacific coast. The Standard Oil Co. markets the bulk of all petroleum products, excepting fuel oil, that are sold by these five large companies. In 1919 its proportion of the combined quantity of the principal petroleum products sold by the five companies in the domestic market was: Gasoline almost 61 per cent, engine distillate 43 per cent, kerosene 78.5 per cent, and lubricants 73 per cent.

PRICES SET BY STANDARD.—The dominant position of the Standard Oil Co. as a producer and purchaser of crude petroleum and as a marketer of petroleum products, together with the disposition of other companies to "follow the Standard" since 1915, has enabled this company to name the prices of these products. The president of the Union Oil Co., the second largest factor in the petroleum industry of California, described the method of determining prices of petroleum products for the Pacific coast territory as follows (see p. 135):

> It is a known fact that for many years past the wholesale open market prices of gasoline and distillate on the Pacific Coast have been regulated by the prices fixed by the Standard Oil Company, and that the other marketing concerns in that territory have fixed their sales prices so as to correspond with the prices established by that Company. This is the natural and unavoidable situation resulting from the fact that a large percentage of the oil refining and marketing business has been in the hands of that corporation, and has not been brought about by any agreement between the marketing companies for the fixing of prices.

Section 3. Control of crude petroleum prices.

CONTROL BY PIPE LINES.—In order to transport crude petroleum from the oil fields the producers' tanks are connected by gathering lines with a main pipe-line system, and in California most small producers are limited to a single purchaser because only one pipe-line system is available and the pipe lines have not been actually operated as common carriers.[1] The control of prices of crude petroleum by the large companies, by virtue of their ownership and operation of nearly all the oil pipe lines in California, as set forth in the pipe-line decision rendered by the Railroad Commission of the State of California on December 31, 1914, or just at the beginning of the period covered by this inquiry, is as follows:[2]

> The record clearly shows that these pipe lines are the only efficient means of conveying oil from the San Joaquin Valley fields to the markets. The oil of the independent producers is being purchased in the fields by the large oil companies and then transported to the market through these pipe lines. The oil markets are at great distances from the producing wells. The independent producer cannot, himself, construct a line to carry his oil. The expense of constructing such a line is prohibitive. For this reason the oil pipe lines have an advantage over the independent producer. If the oil of the independent producer is to reach the market at all, it must be transported through one of these pipe lines. To have his oil transported, he must sell it in the field to one of the large oil companies.
>
> Under these circumstances it would naturally be expected that the oil pipe lines companies could dictate the prices at which the independent producer should sell his oil to them.
>
> The record shows the companies are doing this very thing. There is a remarkable uniformity in the price offered by all of these companies for the oil of the independent producers. The record is specific that the General Petroleum Company adopts the price named by the Standard Oil Company; that representatives of the Associated Oil Company and the Union Oil Company frequently confer upon the price to be offered the independent producer, and that no company has ever underbid [overbid] a price named by the Associated Oil Company. In our opinion these facts, relative to the price offered for the oil of the Independent producer could not exist under free competition in the bidding for that oil. It is clearly evident that these large oil companies in the San Joaquin Valley control the price at which the independent producer is required to sell his oil to them.
>
> The control of the oil production in this state has an important bearing upon the question of monopoly in the oil pipe line business. The record shows that of the state's entire production the Standard Oil Company controls 30 per cent, the Associated Oil Company 22 per cent, the Independent Oil Producers Agency, which controls the Producers Transportation Company line, 22 per cent, the General Petroleum Company which controls the General Pipe Line Company of California 11 per cent, and the Kern Trading and Oil Company, which uses one half of the capacity of the lines of the Associated Pipe Line Company, 10 per cent. Ninety-five per cent of the entire oil production of this state is controlled by these five companies. By far the greater portion of this oil is purchased by these companies from the independent producer in the fields. These companies have become the exclusive buyers of the oil of the independent producer. The complete control which these companies may exert over the independent producer in the disposition of his oil is obvious. We find as a fact that Standard Oil Company, Associated Oil Company, Producers Transportation Company, Associated Pipe Line Company and General Pipe Line Company of California have secured the control and monopoly of the transportation of crude petroleum and the products thereof from the San Joaquin Valley oil fields.

The Railroad Commission refers to the uniformity of the price offered to the independent producers by these companies, and states that the General Petroleum Co. adopted the price named by the

[1] See Part I, page 162.
[2] California State Mining Bureau, Bull. No. 69, pp. 493–494.

Standard Oil Co., while representatives of the Associated Oil Co. and the Union Oil Co. frequently conferred upon the price to be offered. At the date of the above opinion by the Railroad Commission of California, there were four companies operating oil pipe lines tapping the oil fields in the San Joaquin Valley, viz, Standard Oil Co. (California); Associated Pipe Line Co., owned jointly by the Associated Oil Co. and the Southern Pacific Co.; the General Pipe Line Co., owned by the General Petroleum Co.; and the Producers Transportation Co., controlled by the Union Oil Co. In 1915 the Valley Pipe Line Co., controlled by the Shell Co., completed its line from the Coalinga field to Martinez. There has been no change in the price policy since 1914.

ATTITUDE TOWARD UNION-AGENCY CONTRACT.—Since 1910 the crude petroleum produced by the members of the Independent Oil Producers' Agency (see p. 21) has been marketed through the Union Oil Co. The Agency has at times found it difficult to prevent the withdrawal of members because they were not satisfied with the prices they were receiving for their crude. This situation and the attitude of the manager of the fuel-oil department of the Southern Pacific Co., the principal consumer of the heavy grade of crude produced by the Agency members, is shown in a letter dated August 9, 1917, written by T. A. Hays, assistant to the vice president and general manager of the Union Oil Co.:

> Was in Mr. D'Heur's office this P. M. and he showed me a letter signed by Mr. Louis Melzer, on a letterhead of the Roseburg Oil Company, whose offices are in the Merchants National Bank Building, Los Angeles. In this letter Mr. Melzer says that he is associated with Mr. Black, and that they will have the output of twenty-five companies and individuals, who are at present members of the Agency, and that they will be in a position to furnish him with 20,000 barrels monthly. They also say that, at the present time, they have 25,000 barrels of oil on hand and would like Mr. D'Heur to come and see them in Los Angeles, or Mr. Melzer would come to San Francisco, if Mr. D'Heur was interested.
>
> In my presence, Mr. D'Heur dictated a letter to Mr. Melzer, and told him that he was not interested in Agency oil, except through the proper channels.
>
> I should have said that Mr. Melzer says in his letter, that Mr. Black is bringing a suit that would allow any Company, at present in the Agency, to withdraw whenever they saw fit.
>
> Mr. D'Heur said he thought we would consider it, and he would consider it, an unfriendly act if he did business with this outfit.

The other large crude-petroleum purchasers generally recognize the Union Oil Co.'s contract with the Agency and do not attempt to purchase crude from Agency members.

BASIS OF CONTRACT PRICES.—The prices of the Standard Oil Co., which are publicly announced, are generally used as a basis for the purchase of crude petroleum in the principal oil fields by all other companies. The light crude petroleum purchased by some of the small refiners in Southern California is based on the Standard's announced prices, but these refiners usually pay a premium over the Standard prices, as shown by the following extract from a letter written by the Wilshire Oil Co. to James and William Shields on April 28, 1919:

> Confirming our conversation of today, we herewith offer to contract for all your Royalty Oil which is produced upon your property by the Montebello Oil Company, near Fillmore, California, for a term of five (5) years; and we will pay you a premium of twenty-five cents (25¢) per barrel, at all times, over and

above the Standard Oil Company's published purchase price of Crude Oil of like Gravity and quality to the producers at the well in the Ventura Oil Field, on a sliding scale, up and down.

In case the Standard Oil Company does not publish its purchase prices in the Ventura Oil Field, for crude oils of like Gravity and quality as that produced upon your property mentioned above, then the Standard Oil Company's published purchase prices to the producers at the well in the Whittier-Fullerton Field shall apply.

The directors of the Independent Oil Producers' Agency accept the Standard prices as a basis for settlement. On March 20, 1920, Alex. Miller, president of the Del Rey Oil Co., a member of the Agency, wrote to W. B. Robb, secretary of the Agency, as follows:

I saw in the papers that the Standard Oil Co. has decided to raise the price on all grades of oil 25¢ per bbl., the increase to begin March 17, 1920.

Will you please inform me whether the Union Oil Co. will pay us the increase in the next check for the February shipments, or whether the increase is to begin with shipments made after March 17th, 1920?

Mr. Robb replied to the above on March 22, 1920, as follows:

Responding to your favor of recent date dealing with the advance in crude oil made by the Standard Oil Company on the 27th instant, it is the custom of the Standard when issuing a new schedule of rates to have the same apply ten days from the date on which the announcement is made therefore on all contracts existing; this advance will be applicable on the 27th.

The Agency, being obliged to pay all of its members the average net price received, will multiply the first twenty six days in March by $1.23 and the concluding five days by $1.48 and divide the total result therefrom by thirty one, which will give the average price for the current month. This is done so that the spirit of the contract may be carried into effect and also that members may not be discriminated against because of it being to the advantage of the pipeline or their convenience to make deliveries during a particular period of the month.

The other large purchasing companies use the published prices of the Standard Oil Co. in contracting for the royalty portion belonging to the lessor of property which they lease. On February 21, 1921, for example, the Union Oil Co. entered into a contract of lease with Minnie A. Rickard, of Bella Vista, Calif., which contained the following provision:

D. It is further agreed, that, except as hereinafter otherwise provided, the Lessor may, during the entire period of this lease, or from time to time, in lieu of taking her royalty oil in kind, elect to sell to said Lessee and said Lessee shall purchase from Lessor all of the merchantable royalty oil of said Lessor produced from said lands, and shall pay for the same at the prices fixed by the public published schedule prices offered by the Standard Oil Company of California, for oil of like gravity and quality in the district where said premises are situate, but subject to the usual and customary deductions for temperature, water and B. S., and the actual cost of treating said royalty oil, in case same shall require treatment; provided that for first year after royalty oil becomes deliverable Lessor shall be deemed to elect so to sell the same,—and that any election thereafter shall be made in writing within thirty (30) days before expiration of the current year and shall then have effect until the end of the next calendar year,—but if no such election is made, Lessor shall be deemed to have elected to sell said oil as aforesaid. Payment shall be made by the Lessee on or before the twentieth of each calendar month for all royalty oil or other products received by it during the preceding calendar month.

Section 4. Price competition in refined petroleum products, 1913–1915.

RETAIL MARGIN ESTABLISHED.—In 1914 the margin between the retail and the wholesale price of gasoline varied widely. In the San Francisco territory, for example, the retail margin varied from 5½ cents to 9½ cents per gallon above the wholesale price. In the fall of

1914 a meeting was held at the Hotel Oakland, in Oakland, Calif., at which representatives of the large refining companies met with the Automobile Industries Association to discuss retail prices and marketing conditions. Under date of September 22, 1914, this association wrote to the sales manager of the Standard Oil Co. as follows:

STANDARD OIL CO.,
200 Bush St., San Francisco, Cal.

Attention of Sales Mgr.

DEAR SIR: Since the installation of the gasoline service stations within the Bay district, there has been much cutting in the price of gasoline and as our association represents about sixty-five dealers who sell gasoline, we believe it only fair and just that they should be entitled to a legitimate profit on each sale of such product.

Therefore, the Association kindly invites your firm to send an authorized representative to our meeting, which will be held next Thursday evening, Sept. 24th, at the Commercial Club rooms, top floor of the Hotel Oakland of this city. At that time we hope to be able to devise some plan in which a staple differential of price can be maintained.

We can not impress upon you too strongly the importance of this meeting and ask that you make a special effort to be present. No dinner will be served and the meeting will be called to order at 8 P. M. sharp.

Asking for your co-operation in this matter, we are

Yours very truly,

AUTOMOBILE INDUSTRIES ASSOCIATION.
Per (sgn) HERBERT S. SMITH.

As shown by the following letter, representatives of all of the large refining companies, except the Associated Oil Co., were present:

PERSONAL

OAKLAND, CAL., *Sept. 25, 1914.*
GARAGE ASSOCIATION,

Mr. H. T. HARPER,
Standard Oil Company, San Francisco, Calif.

DEAR SIR: Last evening, in the Commercial Club rooms in the Hotel Oakland, the second meeting in the organizing of a garage association took place, the several representatives of the different companies, in a wholesale way, being requested to be present.

This invitation was received by the undersigned at the last moment. I rather hesitated attending a meeting of this character by reason of our past, but concluded, from something I heard from a friend on the street, that it was really advisable that I be there simply as a spectator; hence I attended. I asked also to have our Mr. Munro there.

The several representatives of the other companies were there. From the Union, Mr. Dutton and Local Manager Wallisch; from the Pinal Dome, Mr. Stevens; from the Pacific States, cannot recall his name now; from the Shell, Mr. Sinclaire. The Associated were not present.

The association numbers 99 firms at this time and seems to have made considerable progress since their original date of organization. Tires and the Gasoline situation were their problems. I stated simply that we were there in the capacity of wholesalers; that we really had nothing to say as to what the retail prices should be, but some doubt was expressed concerning our having any direct interest in the National Supply Company; and I stated that that matter had been made plain twice by written statements from the President of our Company—we did not know how we could make it any stronger.

I further emphasized that we were not retailing Gasoline and that for this reason we did not see where we had anything to do with the retail price.

An attempt was made to bring out what was thought to be a reasonable margin for the handling of Gasoline, the conclusion being that it would be well for several garages to tab the actual time taken for the delivery, cost of the man's time, leakage loss, the added cost of insurance because of the Gasoline hazard or risk, etc. One of the representatives, Mr. Dutton, rather emphasized that they should have five cents per gallon profit, for which he received some applause.

I distinctly withheld from expressing myself as to the profit that might be had but believe that it may be finally concluded that 1½¢ above what is referred to as market list may be made a correct price. This may be slightly deducted from for firms that are large commercial users. It is somewhat on the basis of tire schedules.

What led me to go was the intimation that there might possibly be a landslide by the Association from ourselves and it appeared from the general trend of the meeting last night it was best for us to be represented.

Yours truly,

F. A. WILLIAMSON.

Another meeting of this association was held on October 3, 1914, to which the Standard Oil Co. was invited to send a representative. The Oakland agent of the Standard was instructed by the home office to use his own judgment as to the advisability of attending this meeting, and he did not attend. (See Exhibit 2, p. 188.)

On October 1, 1914, the Standard took over the service stations of the National Supply Co., referred to in the above letter, and on October 8 the Standard began operating these stations and fixed its differential on gasoline between the wholesale and the retail price at $0.02 per gallon. The object of the Standard in acquiring these stations is given in the following excerpt from a letter written November 2, 1914, to the fire marshal of San Francisco by W. S. Miller, of the Standard, as follows:

A month or two ago a report came to me that possibly our company might be able to buy out these stations. The condition of the Gasoline market was in such shape that our company had to do something and it was thought that possibly by buying these stations and putting in some more we could standardize the business both as to quality and as to price—not that we can control prices; that we don't aim to do except in our own plants. With this end in view we opened negotiations with these people and bought them out as of October 1st, taking possession about the 8th of October. We have three of these stations in San Diego, seventeen in Los Angeles, eight on the other side of the Bay and three or four here.

PRICE CUTTING REPORTED BY AGENTS.—As already stated, the Standard Oil Co. began retailing its refined products in October, 1914, after which time it made its own retail price and instructed its agents to keep it informed regarding the prices of competitors. On November 13, 1914, the following letter was sent to all district sales managers:

We frequently hear from our District Sales Managers, through Weekly Trade Reports or letters, that competitors are offering Petroleum products especially Gasoline and Refined Oils at less prices than those at which we are selling.

We would be pleased indeed if you could get us some evidence of this either in the shape of a bill, a quotation or something that, you might say, would be evidence in a court.

The home office of the Standard Oil Co. was kept well informed of all price agreements of the Independent Petroleum Marketers' Association (see p. 123), and local representatives of the Union Oil Co. kept their main office informed of competitors' prices.

PRICE COMPETITION ACTIVE, 1913–1915.—Active competition originated among the small independent refiners in the vicinity of Los Angeles in 1913, following the entrance of the Shell interests into the Pacific coast market. This competition caused a marked decline in gasoline prices, which spread over the entire Pacific coast territory. The keen competition in the Los Angeles territory was largely eliminated and harmony established by the end of 1915. Thereafter,

as a rule, uniform prices were maintained on refined products and a uniform policy established in the classification of customers which were allowed differentials from the retail price. Complaints alleging price cutting or other interference with the maintenance of the recognized price originating with local company agents in the different localities were usually adjusted.

During this period there was also some price competition among the large marketers, as is indicated by the following extract from a letter dated July 23, 1915, written from San Francisco to C. M. Fuller, general manager of the Richfield Oil Co.:

> The following, relative to the situation in the gasoline market here may be of interest to you. As you are aware the A. O. Co.[1] has the contract with the Garage Dealers Association at three cents below the market. They have interpreted this contract to include any new garages that may join the Association. As you can see this gives them practically a monopoly on the garage business unless competitors meet their prices. So far the Union and the Standard are standing pat on a two cent differential, but the Shell Company is evidently going after the business as the following instance will show.
>
> Mr. Kelday, formerly secretary of the California Oil Burner Company resigned some time ago, as I told you when you were up here, and started a new concern called the California Oil & Service Co. He has obtained a three cent differential from the Shell on gasoline—also a 2½c price on stove oil. Mr. Ralph of the Union told me that Mr. Williamson, the S. O.[2] Manager in Oakland had indisputable evidence to this effect and had brought it to the notice of his superiors with the result as he assured the U. O.[3] man that there would be another ½c reduction in the very near future.
>
> I was also told that the S. O.[2] people already have signs for 10½c and 10c painted and ready to be put up. Doesn't sound very encouraging, does it?

The above referred to conditions in the San Francisco district.

Section 5. Maintenance of prices of refined products, 1915–1920.

PRICE ADJUSTMENT ATTEMPTED AT SAN FRANCISCO.—In the latter part of 1915 an effort was made to "adjust" conditions in San Francisco, as shown by the following letter of November 9, 1915, written by the president of the Richfield Oil Co. to J. B. Carlock at San Francisco:

> Please confer with Mr. Hayes, of the Union Oil Company, with reference to a meeting to be held next Tuesday for the purpose of several adjustments necessary with reference to prices, etc., in San Francisco.
>
> You understand our policy is to work with our good competitors in every way that is possible for harmony to the best business interests.
>
> Use your own judgment in connection with matters coming up at that meeting and advise us as to what steps, if any, are taken governing the situation.

On November 12, 1915, Mr. Carlock wrote to T. A. Winter, president of the Richfield Oil Co., in reply to the above letter as follows:

> Have just come from a conference with Mr. Hayes who advised me that the proposed meeting has been called off temporarily—reasons for this you may obtain from Mr. Ralph, as he suggested it would be better not to put it in writing. He also informed me that the Standard have reduced the gravity of their gasoline to 59½ and that the Union intend to follow suit on or about the 15th of this month.

PRICES MAINTAINED IN SAN DIEGO.—In the San Diego territory the Union Oil Co. was maintaining the Standard prices, as is shown by

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[1] Associated Oil Co.
[2] Standard Oil Co.
[3] Union Oil Co.

the following letter written by C. W. Ralph, of the Union Oil Co., to L. H. Fish, of the same company, under date of October 1, 1915:

Replying to your 534–F, of September 29th, in reference to your sub-agent at El Cajon selling R. F. Robinson, agent for the Case Automobile & Tractor Company 500 gallons of gasoline at 2¢ off the market, this was absolutely in line according to your instructions under date of August 21st.

However, you appreciate that it is far from our wish to bring about a gasoline war. In view of this, won't you please get in close touch with Mr. Jeffries and ascertain fully just what his Company is doing with trade of this kind and we would suggest that you follow the same methods in regard to marketing so as to not cause any friction. We trust you can do this without losing any business.

The Mr. Jeffries referred to above was a representative of the Standard Oil Co. The examination of the San Diego agent's letter file did not reveal any further question regarding the classification of trade or price differentials.

PRICES OF STANDARD FOLLOWED AT KINGMAN, ARIZ.—During the summer and fall of 1915 there was complaint by the local representatives of the Union Oil Co. and the Standard Oil Co. regarding alleged price cutting at Kingman, Ariz., which required considerable negotiation and several visits by agents of both companies to Kingman before the matter was finally adjusted. Prior to 1919 the Union Oil Co. and the Standard Oil Co. were the only large marketers selling California refined products within the State of Arizona.

On June 17, 1915, J. E. Balsley, district sales manager for the Standard Oil Co. at Phoenix, Ariz., wrote a letter to H. T. Harper, of the Standard at San Francisco, in which he described the conditions at Kingman, Ariz., as follows:

We have enjoyed a large percentage of the available business at Kingman since opening our station thru the cooperation of Tarr & McComb, Lovin & Withers and the United States Stores.

When the Union Oil Co. opened their Station last Fall, the Arizona Stores Co. diverted their business to the Union.

This gave us about 75% of the business, the balance going to the U. O. Co.

Thru some misunderstanding with the U. O. Co. the Ariz. Stores Co. severed their business relations with the Union recently, giving us the business. This placed the Union in such a position that they necessarily had to go after the consuming trade.

They have placed in operation at Kingman this past week, a 3½ ton combination tank wagon and package truck. They are going to sell to the Mines and to the consuming trade direct, and are, also, in a position to deliver. Undoubtedly they will deliver at about actual cost, which will further decrease the cost of oils to the consumer in the outlying districts, as Tarr & McComb and Lovin & Withers have charged a rather excessive rate for hauling.

I am giving you all of this information, so that when I write again you will be armed with the facts.

It would seem policy for us at the present moment to sit tight and await developments, as we have all of the large interests on our side—and still in the writer's opinion it would indicate that it is only a question of time before the Union will secure the largest percentage of the business thru the fact that they will sell direct at the list price and do the hauling at a nominal figure.

At this date some of our larger interests there have asked for a better differential, so that they would be able to meet the Union's competition. The list prices at Kingman will hardly stand for another increase as it would put Kingman open to competition from Los Angeles by doing so.

I will keep in close touch with this situation, and make my recommendations after sifting the matter down a little further.

The truck which was placed in operation is a combination 3½ ton VELIE with a 800 gallon tank arranged so that it can be taken from the bed and the Truck used for case and barrel deliveries.

The latter part of June the Union Oil Co. was reported to be selling at 1½ cents per gallon under the list price, and the Standard's local representative was instructed by the home office to reduce the price 1 cent per gallon on gasoline, engine distillate, and kerosene, effective July 1, 1915. (See Exhibit 5, p. 199.) This reduction of 1 cent per gallon was made by the Standard "to meet competitive conditions." (See p. 140.) Prior to this reduction the Kingman price was 6½ cents above the Standard's El Segundo refinery price, while after July 1 the differential was maintained at 5½ cents per gallon. (See Exhibit 2, p. 140.)

After the general price advance of October 5, 1915, the local representative of the Union Oil Co. at Kingman complained that the Standard had not increased its price 1 cent per gallon gasoline and one-half cent per gallon engine distillate. (See Exhibit 5, pp. 199–203.) On October 16, 1915, the Union's agent at Phoenix was instructed by wire and by letter from the home office to attempt to adjust matters, as shown by the following extract from the company's letter of October 16, 1915:

We have just wired you as per confirmation attached. C. A. Moore's letter to you of October 14th, file CAM–628 copy to us; also his letter, file CAM–630, of October 14th, copy to us. In both instances he is calling our attention to our competitor's not advancing their prices.

We trust you can see whoever is necessary and get this adjusted, for, if they will not line up as we have been led to believe they would do, it will simply force us to meet existing conditions, which we do not wish to do, providing it can be adjusted differently.

The instructions contained in the above letter were complied with, as is shown by a letter dated October 19, 1915, written by C. E. Beach, Phoenix representative of the Union, to C. W. Ralph, the company's manager of stations.

Referring to the above subject: I have talked this matter over with our Competitor, and of course, they denied not having raised their price the last time prices were raised in Arizona. However, one of their representatives is on his way to the Coast, and informs me is stopping off at Kingman, and will look into this matter. I think this will be adjusted if they are out of line.

On same date C. E. Beach wrote to C. A. Moore, the Union representative at Kingman, in part, as follows:

Referring to the above subject: I have not had a chance to talk this matter over with Mr. Balsley, but talked to Mr. Ferguson and of course he contends that they are selling at the regular list price, and raised the price as we did last time. However, Mr. Ferguson is on his way to Kingman at the present time and I trust will adjust matters, but it would be well for you to keep your eye on this, which I know you will do, and see if they really do make the right price.

Messrs. Balsley and Ferguson were representatives of the Standard Oil Co.

On November 2, 1915, John H. Hull, of the Union Oil Co. of California, wrote to C. W. Ralph, in part, as follows:

I then met Mr. Harlan, Traveling Salesman for the S. O. Co. and had a long talk with him and he was very agreeable to everything suggested and assured me that prices would be maintained and sold at schedule, and should he find anything which we were doing which did not look business-like to him, he would be very glad to take it up with us and should his company do anything that looked unfair to us, he would be very glad to do everything possible to correct it, if his attention was called to the matter.

The following day, November 3, 1915, J. H. Hull, of the Union, wrote to C. E. Beach at Phoenix, Ariz., regarding "Kingman prices," in part, as follows:

We are today in receipt of copy of Mr. C. A. Moore's letter No. 655, of October 29th.

After reading this letter over carefully we would suggest that you see Mr. B. and show him that portion of Mr. Moore's letter in which Mr. Moore thinks his company is treating us unfairly in not maintaining prices.

As you appreciate we took Mr. B. at his face value and believe that he intends to play fair with us, and it is only courtesy on our part to give him a chance to show his hand and not judge him unduly.

For your information, I went to Kingman as you well know, and tried to straighten out the situation to the best of my ability. We had the assurance from Mr. Harlan that his company intended to play fair and do everything they possibly could to adjust any matters as to price cutting. I gave your assurance, and my own, that we would do our part to keep from demoralizing prices as I know that you feel we will all be better off to get a good price out of our Kingman products as you realize it is a very expensive place to do business.

* * * * * * * * * *

I took it upon myself to instruct Mr. Moore that he must not cut any prices without first conferring with you, as we have made certain promises to our competitors which we feel in duty bound to keep, providing they are fair with us. If Mr. Moore can show us at any time where they are cutting prices, you know that we will be at all times willing to give you, or him our best efforts to correct anything that is wrong.

Mr. B. referred to above was J. E. Balsley, district sales manager of the Standard Oil Co. at Phoenix, Ariz., as he was named in C. A. Moore's letter No. 655. (See Exhibit 5, p. 201.) Mr. Harlan was a traveling salesman for the Standard.

The local representative of the Union Oil Co. at Kingman still complained of the Standard cutting prices, and on November 18, 1915, J. H. Hull, of the Union, wrote C. E. Beach, of the same company, in part as follows:

I have gone over the Kingman letters and note in several instances, where Mr. Moore cites where the Standard Oil Co. actually have not acted in good faith and I would suggest that before you go to Kingman, you see Mr. B. and cite him the cases, and further try to get him to state further just what his Company will agree to do as to the prices at Kingman.

In compliance with the above instructions C. E. Beach called upon J. E. Balsley, of the Standard, as shown by the following extract from his letter to C. W. Ralph, of the Union, dated December 1, 1915:

Referring again to the matter of Kingman prices, I today had a long talk with Mr. B. and he promised me that they would line up with us on the Kingman price inside of ten days, that is, they will advance their list in the town of Kingman where they have been cutting. Of course you understand the last list that we fixed up at Kingman which Mr. Hull took in with him is all O. K. with the exception of the 1¢ off on Distillate. This was caused by an error of our competitor getting report that price of Distillate should also be advanced when gasoline advanced on last Saturday the 27th, so by taking the 1c off of the Distillate column at Kingman, and the different mines, your list will then be correct.

Suppose of course since Mr. Hull has gone into this matter thoroughly with you there is no reason of going into details on this subject, but I wish to advise yourself and Mr. Hull that the proposition looks better to me now than it ever has before, and especially since I have talked with Mr. B.

On November 26, 1915, the home office of the Standard instructed its district sales managers to advance the market price of gasoline and naphtha 1 cent per gallon. Through error the Kingman agent

advanced the price of engine distillate instead of naphtha. (See Exhibit 2, p. 144.) The Kingman agent of the Union Oil Co., as shown in the last quoted letter, followed this "error."

On December 4, 1915, J. H. Hull wrote to C. E. Beach in part as follows:

> We are very much pleased to hear that you have had a conference with Mr. B. and that inside of ten days matters will be lined up satisfactorily.
>
> We have corrected our list as to 1¢ off on distillate. We would suggest that Mr. Moore make out new list and hand to different parties in Kingman as the list I left with him will not be correct as to prices on distillate, being 1¢ too high.
>
> We have gone over the Kingman matter thoroughly with Mr. Ralph and he is very much pleased to hear that everything has turned out satisfactorily.
>
> I am very much pleased to hear that the Texas Company have more than lined up with us at Tucson. After finding that they were out of line, I wrote a personal letter to Mr. Snell, outlining the complaint fully and I believe that it has done us some good. Should anything come up in the future in your territory, if we can be of any assistance to you, kindly advise us in what way.

Although J. H. Hull wrote on December 4, 1915, "that inside of 10 days matters will be lined up satisfactorily," the home office of the Standard did not change the differential of 5½ cents per gallon between the El Segundo refinery price and the Kingman price according to a statement furnished by the Standard. (See Exhibit 2, p. 140.) The following extract from a letter written by J. H. Hull to C. E. Beach under date of December 23, 1915, corroborates the Standard's statement, and gives Mr. Beach instructions to meet the Standard's prices:

> In reference your conversation yesterday with Mr. Blue suggest you make another effort with interested parties to get Kingman prices adjusted. If you can not, meet their prices, advising fully.
>
> We attach herewith confirmation.
>
> We know you appreciate we are anxious to get prices adjusted throughout your territory as per personal talk with Mr. B. and ourselves some time ago. Won't you kindly bring the matter to an issue along lines talked of, advising as soon as you possibly can what arrangement can be made so we will know where we are and can get our prices lined up accordingly.
>
> If we are higher at any points and they will not adjust them in accordance with ours, so advise us and we will arrange ours to meet these conditions.

Evidently the Standard would not agree to sell at the prices desired by the Union, and as a result the latter reduced its prices to meet the Standard's, as shown by the following extract from a letter written by C. E. Beach to C. W. Ralph under date of December 27, 1915:

> We are to-day wiring Mr. A. O. Bowen at Kingman as follows:
>
> "Effective immediately reduce price one cent all deliveries Gasoline, Kerosene, and Distillate at Kingman only. Also refer our telegram twenty-third advancing price Gas Oil. Do not make this advance until further advised."
>
> * * * * * * *
>
> "You will also note I have advised Kingman station to meet our Competitors' list on Gasoline, Kerosene and Distillate. This was done after talking the matter over thoroughly with Mr. B. He thinks we [were] justified in doing this as his people at Frisco are slow in adjusting this matter."

W. L. Stewart, president of the Union Oil Co., submitted a statement (see Exhibit 1) giving the following explanation of the situation as described above:

> Some of the letters cited by you refer to a situation in the Kingman District in Arizona caused by the increase in prices at base points. When the increase was made Union Oil Company of California made corresponding changes in its prices in the Kingman District in Arizona. Standard Oil Company failed to make an immediate adjustment of prices in that district. The result of this

was that Union Oil Company was charging more for gasoline and distillate in the Kingman District than the prices quoted by the Standard Oil Company. This would, of course, result in a loss of business to the Union, and its employees were seeking to ascertain if the Standard intended to increase its prices in accordance with the increases theretofore made by it at base points, or if the Union would be compelled to return to the schedule formerly in effect in order to retain its customers and remain in the field of competition.

We submit that in view of these facts the letters in question do not show an attempted collusion in the fixing of prices.

The other letters written to and from the same (Kingman) district in Arizona at most show an attempt to arrive at an understanding among marketers in that district that established prices and price differentials would be adhered to. The obvious purpose of this was to prevent the adoption of unfair competitive methods.

NOTICE OF PRICE CHANGES.—Apparently, as a rule, the local representatives of the large marketing companies did not take advantage of each other in the use of advance information regarding price changes. On October 28, 1915, F. E. Albright, the Union agent at El Centro, wrote the home office complaining because the local agent of the Standard received advance information concerning advances in price and took advantage by notifying all of the trade to fill up at the lower figure. (See Exhibit 6, p. 204.) In order to be in the same position, he insisted that it would be necessary to receive this advance information as soon as possible. This referred to the price advance of October 26, 1915, which was made simultaneously by the Standard and the Union. The following letter, dated November 5, 1915, was written in reply to the above:

Replying to your letter of October 28th, we see you state our competitor takes advantage of changes in prices by filling up their customers before you have been advised as to the advance.

We appreciate this does not make you feel that you are being treated exactly fair, but we will at all times pass the information to you as to a rise or decline in the market quotations as soon as we get it.

Would it not be well for you to meet the agent of our competitor and you and he talk this particular question over. We have done this with our competitive agents at other points and in a manner have agreed not to take advantage of one another on conditions of this kind.

PRICES ADJUSTED IN VENTURA DISTRICT.—During the latter part of 1916 and early 1917 the Associated Oil Co. was accused of being out of line in the matter of uniform prices in the Ventura, Calif., district. Apparently a satisfactory agreement was reached, and the Associated lined up with the other companies, and a uniform price was maintained in the district. The question was raised by the agents of the Union Oil Co. in the Ventura district and was taken up by the manager of stations for the Union with the home office of the Associated Oil Co. in San Francisco.

The manager of stations, by J. H. Hull, of the Union Oil Co. of California, wrote to J. M. Geary, district sales manager, Los Angeles, on December 22, 1916, in part, as follows:

Sometime ago, Mr. McVean advised the Associated were offering private consumers 1¢ per gallon off list price on gasoline. As per your request, we took the matter up with Mr. Ralph in San Francisco by wire, as you will remember he was in San Francisco at the time. On Mr. Ralph's return he stated he saw certain parties and they gave him to understand they were willing and anxious to line up on prices, but they were not at all times familiar with what was being done at some of their different points and in some instances their representatives had misled them. In view of this, could you get us a ticket showing to whom these cut prices are being made and we will try and get this satisfactorily adjusted? Should you have any other

complaints from the Associated Oil Company, if you will get us tickets showing they are out of line in any way, the San Francisco office assures us they will try and line their representatives up satisfactorily.

On December 23, 1916, the local agent of the Union at Ventura, Calif., was requested by the manager of stations to secure specific information regarding a sale at cut price by the Associated agent to a given customer, as, according to C. W. Ralph, the Associated Oil Co. had promised to "discontinue the practice at once." (See Exhibit 8, p. 205.)

In compliance with the above instructions J. M. Geary, district sales manager of the Union Oil Co., wrote C. W. Ralph, of the same company, furnishing the name of a customer to whom the Associated Oil Co. had given a reduction in price, as shown in the following letter dated January 8, 1917:

Acknowledging your JHH-4 of January 2nd covering the above subject, the following from Mr. McVean for your information.

Noting contents of letter from Mr. Ralph's Dept. concerning Mr. Boyes' report of Dec. 19th to the effect that Mr. Cohn was being granted an allowance on gasoline by the Associated Oil Co. I desire to say that Mr. Boyes mentioned this to me whereupon I immediately took the matter up with the Associated Agent at Oxnard, who is a new man on the job and he very frankly stated that shortly after taking that position he discovered that his predecessor had been making such an allowance in three instances (Mr. Cohn being one) and that he had put all three customers on regular schedule early in December. We have formed a very good opinion of this new agent (Mr. Cook) and have no reason to question his sincerity in making the above statement.

From the above correspondence it appears that the Associated Oil Co. and the Union Oil Co. were successful in eliminating price cutting in the Ventura district at the beginning of 1917.

PRICE ADVANCE SUGGESTED IN SPRING OF 1920.—In the latter part of 1919 a shortage of gasoline developed and it was easy to maintain the list prices of gasoline in all parts of the Pacific coast territory, and in January, 1920, the price of crude petroleum began to increase. Following this advance in the price of crude petroleum some of the smaller refiners in southern California were very anxious for the Standard Oil Co. to advance the price of gasoline. On March 17, 1920, the Standard advanced its price 2 cents per gallon. In an interview with an examiner of the Commission, held on March 24, 1920, H. M. Storey, vice president of the Standard Oil Co., described the situation at that time in substance as follows:

On March 22, 1920, the Standard had less than 50,000 barrels of gasoline at its refineries which was equivalent to about three days' supply. In addition to this the company had some gasoline in storage at various distributing stations, which is maintained as a "working balance." The possibility of other refiners taking the initiative in the price increase had been considered by the Standard officials and they concluded that such an advance by others was possible or prospective and that the base price of gasoline might well be set at 25 cents per gallon. The Standard officials also concluded that if under these conditions the Standard did not advance its prices the result would have been a drain on their supply and it would have been exhausted in a few days and that self protection would have forced the Standard to match whatever advances were made. In view of this possibility the officers of the Standard agreed that it was preferable to take the lead and fix a reasonable increase on gasoline instead of letting others take the initiative in creating what might easily be a runaway market.

On March 31, 1920, H. S. Botsford, manager of the Puente Oil Co., wrote C. H. Schlacks, president of the Union Oil Co. (Dela-

ware), the controlling company, pointing out that, whereas the grade of crude petroleum (30° Baumé) consumed by the Puente Oil Co. had increased $0.76 per barrel, gasoline had increased only 2 cents per gallon, and he added:

You may be aware that several years ago a similar condition confronted the operators in the Mid-Continent field, more particularly the gasoline jobbers. The Standard* held the retail price so low that the other dealers could not operate at a profit. Joining forces, they established their price at two cents above the Sandard's list and have ever since maintained it successfully.

I recall your reluctance to take the initiative in advancing gasoline prices, but can see no reason why the independents here could not successfully carry out the same plan as is operative in the Mid-Continent. To my mind there is no question as to its success under the present conditions, when the larger companies are not able to take on any considerable additional volume. Trust you will give the subject some further thought and advise your conclusions.

C. H. Schlacks answered on April 9, 1920, advising against the increase and said:

Whatever is done, however, must be the sole and independent action of the Puente Oil Company and not the result of any agreement or understanding with other manufacturers or sellers of gasoline and be based wholly upon the necessities of the Puente Oil Company to readjust the price of its product conformable to increased prices of raw materials and cost of manufacture. On this point and with the purpose of a strict conformity therewith I desire that Mr. Nickle and yourself confer with our local counsel and be guided by his advice.

Before receiving the above reply, which was written from New York City, H. S. Botsford, on April 10, 1920, sent C. H. Schlacks a code message, the translation of which follows (see p. 206):

Had a talk Monday Standard Oil Co. California San Francisco. As good as recommended Independents increase price gasoline Stop Friday local representative definitely asks if it is not possible independents take such action. Stop Can see no objections making price 25 now 23.5 please advise.

On April 12, 1920, C. H. Schlacks replied in code, the translation of which follows:

Your cipher message tenth just received wrote you on ninth fully on subject which letter you should receive tomorrow or Wednesday and which gives my views stop am opposed to any understanding or concerted action or any action by us with any association which might lead to such assumption stop please await my letter and then confer with counsel and telegraph me if he agrees with my views and if your recommendations of course for our company are free from any understanding with others stop am opposed to our company being party to any association based upon community of interest and if such exists think we should withdraw stop confer with Nickle and counsel on this point.

On April 21, 1920, H. S. Botsford wrote a letter to C. H. Schlacks in which he stated:

Your letter of April ninth and subsequent telegram of the 12th, duly received. After some delay we got our local directors together and while they were emphatically in favor of the increased price which is justified under present conditions, "by advice of Counsel" the matter is dropped for the present owing to your very explicit instructions that the action must be the sole and independent one of the Puente Oil Company. While no explicit understanding exists and the "conferences" were entirely informal and such as are incident to the days business, Mr. Millikens decision was against carrying out my suggestion under the circumstances.

On May 10, 1920, C. H. Schlacks replied as follows:

I have your letter of April 21st giving the result of the Board Meeting on the subject of increased prices of Puente products and I note the action taken. It

*Standard Oil Co. (Indiana).

seems to me that it would be wise for us to avoid taking any prominent part in local associations even if the purpose may be merely to exchange views. I should be glad to know later on what course, under advice of counsel, is finally decided on.

Under date of June 26, 1920, H. S. Botsford tendered his resignation as president of the Independent Petroleum Marketers' Association and withdrew the membership of the Puente Oil Co. from the Association. Mr. Botsford's explanation of the code telegram to C. H. Schlacks, of April 10, 1920, is given in full in Exhibit 9, page 206.

PRICE ADVANCE OF JULY, 1920.—Further efforts were made during 1920 by independents in which the Union Oil Co. of California took an active part to increase prices of refined products. Telegraphic communication between E. W. Clark, vice president and general manager of the Union, and L. P. St. Clair, president of the Independent Oil Producers' Agency, took place during July, 1920, regarding the best methods of increasing prices. The Union took the lead and increased the price of gasoline from 23½ to 25 cents per gallon July 28, and to 27 cents per gallon on August 4, 1920. The Standard Oil Co. followed and increased its price from 23½ to 27 cents per gallon on August 6, 1920. The Oil & Gas Journal of August 15, 1920, page 44, commented on this advance as follows:

Every previous advance during the past has been established by the Standard, which as a natural result, has stood the brunt of criticism on the part of the press and the public.

PRICE COMPETITION THROUGH COUPON BOOKS.—Among the practices that interfered with the maintenance of uniform prices of petroleum products which the large companies had not entirely eliminated up to the end of 1920, was that of selling coupon books at a discount. The use of these books dates from about the latter part of 1915 (see p. 54). In regard to the sale of these books by the Ventura Refining Co. and the Standard Oil Co., C. W. Ralph, manager of stations for the Union Oil Co., wrote L. P. St. Clair, president of the Independent Oil Producers' Agency, on April 10, 1916, as follows:

The S. O. Co. commenced offering several days ago their 100 gallon coupon books at 1¢ per gallon off the market, with no time limit as to delivery of gasoline. These books differ from those sold by the Ventura for the reason the Ventura's are cash discount coupon books having a face value of $100.00. The Ventura have sold these books at $81.80, or a discount of 18.2%. The S. O. Co's. books contain 100 coupons good for one gallon per coupon. On the face of the S. O. Co's. books they specify the locality in which the coupons in that book will be honored. For instance on books sold in the City of Los Angeles the coupons would not be honored in Riverside for the reason the gasoline market prices in Riverside is 1¢ over Los Angeles.

While we are not in position to say positively that the S. O. Co. intend to retaliate on account of the slashing of prices, which is brought about to some extent by those buying the Ventura books, we have good reason to believe from what we know of the local conditions, that if present conditions do continue there is a possibility that the S. O. Co. will place their coupon books on the same basis as those of Ventura. Every possible effort has been made by local interests, among whom were our own officials, to induce Mr. Okey, of the Ventura to market his gasoline along fair competitive lines, without result.

The temptation on the part of garage dealers and filling station owners to slash prices for the purpose of bringing additional gallonage, becomes greater as the market advances and in some cases these dealers have actually sold gasoline at 2¢ off the open market price, thus making our customers sell without profit to themselves, but in so doing the Ventura customer who purchases a $100.00 coupon book, and even cuts the market 2¢ would still make on the present price 1.458¢ per gallon.

The discount of 18.2 per cent originated when the retail price of gasoline was $0.11 per gallon and the wholesale price, $0.09 per gallon, this differential of $0.02 per gallon was equivalent to a discount of 18.2 per cent on the retail price. In reporting a meeting of the Independent Petroleum Marketers' Association on April 11, 1917, H. H. Maxson, secretary, said:

It was then reported the Union Oil Co. had put their coupon system into effect to meet the competition of the Standard Oil Co., who for sometime have offered the trade one cent off the gasoline market thru the sale of coupon books.

A memorandum dated April 26, 1917, found in the files of the Union Oil Co., contained the following paragraph:

In talking this coupon situation over with our competitor, April 24th, they stated that they had been seriously considering some means of meeting our coupon competition in the country but as yet have done nothing and did not know as they would unless they had to in order to protect their gallonage in the country districts.

Following a telephone complaint from one of its competitors in Los Angeles regarding the sale of coupon books to restaurant owners in the Imperial Valley whereby the latter obtained engine distillate at a discount, C. W. Ralph wrote to F. E. Albright on May 31, 1917, as follows:

We note you state there were four restaurant owners in Calexico who secured our books and who were paying for their distillate requirements for cooking purposes with these coupons. We further note you have taken this matter up with your agents and have instructed them that this practice must be discontinued, and that it was not the original intention to sell to these parties for the purpose referred to.

We were of the opinion that if this practice had been going on, that it was without your knowledge or sanction, and that all it would be necessary for us to do was to call the matter to your attention, and if the complaint of our competitor was correct, that the practice would be immediately eliminated.

On February 9, 1918, J. L. Quinn, district manager of the Standard at Los Angeles, reported to H. T. Harper, sales manager of the Standard, on the coupon book situation in Los Angeles, as follows:

In reply to your letter of Feb. 2, RSM:WR, on the above subject, and in harmony with our conversation when I was last in your office relative to the success of these books in certain districts, I am pleased to advise you as follows:

Where the Union Oil Co. have put on a vigorous campaign to the individual auto owner their success has been remarkable in the last month.

The 5% discount on the books redeemable for all kinds of Refined and Lubricating merchandise sold by the Union Oil Co. has been favorably received by the auto owner, and in such districts (has made inroads) into our business as many auto owners feel that the success of the Union Oil Co. books will have a tendency to have the Standard Oil Company adopt a like policy, and while their preference is for Red Crown Gasoline, the 5% discount is attractive and many of the Red Crown users have bought books at the 5% discount not only from the Union Oil Co. but also from the Ventura Refining Co., Richfield Oil Co., Puente Oil Co., Western Oil Co., and the Cal. Oil & Asphalt Co.

The first books put out on the 5% discount to the auto owners were those of the Ventura Refining Co., who have their books on the market for the last three years.

This was shortly followed by the Richfield Oil Co., and these two companies made heavy inroads into the Union Oil Co. business; the effect on our business being almost negligible.

To meet this competition the Union Oil Co., I am told, incorporated into their selling policy a coupon book of money denominations to be sold to the consum-

ing trade at a 5% discount and redeemable by all resellers at face value and which would be redeemed by the Union Oil Co. at the face value the same as cash but only in exchange for merchandise.

On January 29, 1919, G. E. Kennedy, representative of the Standard at Fresno, Calif., wrote a letter to H. T. Harper, sales manager of the same company, in which he stated:

In addition to the lower price shown on the face of the invoices, the Union Oil Company sell a $10.00 coupon book for $9.50, or a $20.00 coupon book for $19.00, and then accept the coupons at face value, and allow the differentials shown on the invoice, which, of course, makes the price lower.

As late as September, 1920, there was still complaint of price cutting through the sale of coupon books. Under date of September 15 the assistant manager of stations of the Union Oil Co. wrote to V. H. Kelly, district sales manager, at Portland, Oreg., as follows:

With further reference to the writer's letter JMG-1470 of September 1, 1920, and the file under the above subject,—please be advised that your principal competitor is making the following charges for $10.00 and $20.00 books in your territory. In the cities of Portland and Vancouver they are charging a price of $9.65 for the $10.00 book and $9.70 for the same book in all other portions of the territory west of the mountains, and a price of $19.30 for the $20.00 Scrip Book in Portland and Vancouver, $19.40 in Medford and $19.35 in other portions of the territory west of the mountains based on today's gasoline prices.

Section 6. Classification of customers.

DEVELOPMENT OF CLASSIFICATION.—In order to maintain uniform prices it was necessary for the marketing companies to classify customers and to fix the price differentials which apply to each class of customers. Much of the complaint regarding price cutting was due to differences among the local agents of the various companies in applying the classification to particular customers. The large marketing companies have sold directly to the consumer from their service stations during the greater part of the period 1914–1920, and the retail market price has been used as the base price to which all differentials were applied. Garage and other retailers have naturally been recognized as a class entitled to a differential from the retail price. A 2-cent differential to garages was established by the Standard Oil Co. in the latter part of 1914. There were also various other differentials, among them being 1 cent for commercial car owners. However, from time to time certain companies differed in their application of the classification when applied to a particular consumer, which caused considerable complaint at various points. Complaints and counter complaints from local agents all over the territory establishes the fact that although the marketing companies maintained a uniform retail price the classification of customers entitled to differentials was not always uniform.

The classifications of the gasoline and engine distillate trade have been added to and changed from time to time. For example, the Standard Oil Co. gradually developed its classification, beginning with July, 1913, and, as already stated, on September 8, 1914, a month before it began operating its own retail stations, all district sales managers were instructed to allow a differential of 2 cents per gallon on gasoline to garages and service stations and 1 cent per gallon to commercial cars. On February 4, 1915, the differentials of 2 cents per gallon on gasoline and 1 cent per gallon on engine distillate,

which had been allowed State departments, counties, municipalities, and the United States Government, were changed to 1 cent per gallon on gasoline and one-half cent per gallon on engine distillate.

CLASSIFICATIONS HARMONIZED.—The efforts to harmonize classification of customers were undertaken as early as September, 1915. On September 29, 1915, L. H. Fish, the Union Oil Co. agent at San Diego, wrote to C. W. Ralph, manager of stations of that company, as follows:

> While I was away at the Special Agent's Meeting at Fresno, our El Cajon Sub-Agent made a delivery of approximately 500 gallons of Gasoline to Mr. R. T. Robinson, Agent for the Case Automobile and Tractor and who is also running a large ranch in the El Cajon Valley. They have in use 4 large touring cars and 2 trucks and thought they were entitled to a 2¢ off list.
>
> This was brought to my attention yesterday by Mr. Jeffries, of the S. O. Company, as well as Mr. Imes. Our men made the delivery at 2¢ off and Mr. Jeffries stated that he did not think that they were entitled to but 1¢ off. Will you kindly advise at your earliest convenience?
>
> I might add, that we have had a classification, whereby any person or Company operating 3, or more, trucks was entitled to 2¢ off list on Gasoline.

On October 5, 1915, L. H. Fish wrote to C. W. Ralph again on the same subject as follows:

> Referring to yours of the first regarding the above account, I took this matter up with Mr. Jeffries today and was advised by him that he had not yet received any instructions to make 2¢ discount to people operating three or more trucks, but that he would take it up with his San Francisco office and advise me of their decision. As the matter now stands he refuses to make Mr. Robinson any better price than 1¢ off the list. We think it best to do nothing toward changing the price to this customer until I hear further from Mr. Jeffries.

C. W. Ralph answered the above on October 8, 1915, in part as follows:

> In looking into the subject further as to giving the above party a 2¢ discount we see that you were fully within your rights in doing this as per Mr. Dunsmore's bulletin regarding the 2¢ discount under date of October 22nd, 1914.
>
> It reads very plainly that you can give 2¢ from the list to transfer companies, laundries, wholesale houses, or customers who are using three or more machines or trucks in their business for delivery or business purposes.
>
> * * * * * * *
>
> However, you state Mr. Jeffries the S. O. Co. agent has no authority to give a discount of this kind and the best that he can do with this line of trade is 1¢ off the list. Should the S. O. Co. continue to follow strictly 1¢ off the list we would think it advisable for you to work in accordance with them so as not to cause any friction.
>
> As soon as you have Mr. Jeffries instructions on this subject, won't you kindly advise us. In the meantime, you can no doubt handle Mr. Robinson satisfactorily until this has been adjusted further between yourself and Mr. Jeffries.

The above is typical of many instances of different classes of customers who were given a price differential apparently on account of quantity by the different marketing companies prior to December, 1915. On December 11, 1915, C. W. Ralph, manager of stations for the Union Oil Co., issued bulletin No. C. W. R.–126 on tank-wagon prices of engine distillate, gasoline, kerosene, and gas and stove oil, showing a list of classes of customers entitled to price differentials and naming the amount off the retail price which was to apply to each class. A copy of this bulletin in full is given in Exhibit 10, page 206. The day before, December 10, 1915, J. L. Quinn, the Standard Oil Co.'s Los Angeles district sales manager, had issued a circular naming differentials to be allowed various classes of cus-

tomers, and on December 13, 1915, a supplementary circular letter was sent out (see Exhibit 11, p. 208), which contained the following introductory paragraph:

> At some points some of our Agents have misunderstood our rulings on classification of trade and the differentials that apply thereto, and in order that there should be no misunderstanding in the future, I am pleased to give you below the following.

The "list" referred to was the retail price. According to a statement furnished by the Standard Oil Co. this classification, which was sent out by J. L. Quinn, "was merely a summary of classification that had originated months before and with additions of authority granted by the general office between September, 1914, and September, 1915, is substantially the same classification that Mr. Quinn furnished to his salesmen in 1914" (see p. 145). The classification of customers and differentials for gasoline and engine distillate made by the Union Oil Co. and the Standard Oil Co. at this time were substantially the same. The results which the Union Oil Co. anticipated would follow the use of the same classification by these two companies are indicated in the following letter dated December 15, 1915, written by C. W. Ralph, manager of stations of the Union Oil Co., to F. E. Albright, the Union agent at El Centro, Calif.:

> We can figure no other way for us to determine whether our competitors are going to play fair with us than to be fair ourselves and follow out Mr. Ralph's Bulletin No. 126. Our competitors claim this is what they are going to do, and we would suggest that you see Mr. Woodward and get as close to him as possible and see if we both cannot work along lines which are fully understood between us, as we believe and know, that we will both get as much business at the end of the year by doing business in this way as to try to use the cutting process, which has never been successful in any line of business, and we know that you appreciate all that we are writing in this letter and we are giving you every assurance that we possibly can that our competitors advise us they are trying to be fair, and we are giving them the credit of stating the truth.
>
> If you can find that we are being misled in any way, kindly pass the information to us and we will at all times be willing to go to the front for you and lend all assistance we possibly can.

The Mr. Woodward referred to in the above letter represented the Standard Oil Co. at El Centro, Calif.

Section 7. Maintenance of classifications.

Complaints were made from time to time concerning the proper classification of individual customers. In order to reach an agreement regarding the classification of certain customers, conferences were held by the local agents of the large companies. In case the local agents did not agree on the classification of a particular customer, the question was frequently referred to the district managers of the competing companies. The following cases show the manner in which differences regarding the classification of individual customers or classes of consumers were adjusted:

DAN EMMET.—On December 23, 1915, A. J. McVean, special agent for the Union Oil Co. at Ventura, Calif., wrote to C. W. Ralph, manager of stations, complaining that the Standard Oil Co. had sold to Dan Emmet, a Union Oil Co. customer, gasoline at 1 cent off the retail price and engine distillate one-half cent off the retail price, and that Dan Emmet, "having no commercial car," was not "entitled to 1 cent discount on gasoline." (See Exhibit 12, p. 208.)

On January 6, 1916, C. W. Ralph wrote to N. S. Anderson, district sales manager for the Union Oil Co., in part as follows:

S. O. Co. Prices.

In reference to our telephone talk today, referring to letter from A. J. McVean, Special Agent, Ventura.

We have fully read the letter and agree with Mr. McVean that our competitors are certainly playing unfair by pulling off deals of this kind.

However, we know that this is not done by instructions of the heads higher up and we have every reason to believe that this will be stopped.

C. W. Ralph, manager of stations of the Union Oil Co., wrote N. S. Anderson, of the same company, on January 12, 1916, on the same subject, in part as follows:

Replying to your NSA–167 of January 6th and Mr. McVean's M–3064 of December 23rd, as to competitors prices made to Dan Emmet, of Somis, California.

This matter has been thoroughly gone into and investigation has been fully established. They admit their guilt and while we, up to the present time, have not pronounced the sentence, we believe from now on they will play fair with this particular customer at least.

And again on the same date, January 12, 1916, C. W. Ralph wrote another letter to N. S. Anderson, as follows:

We were today talking to Mr. McVean during your absence from the City, and we tried to outline to him fully that our competitor had investigated this particular case thoroughly and assured us they were not at all pleased with their employees following out methods shown in this case.

They advise us they do not wish to have prices cut in this way and will immediately take steps to stop it. In view of this, won't you kindly advise Mr. McVean to discontinue any cuts on distillate, other than outlined in Mr. Ralph's bulletin No. 126.

The Standard Oil Co. reported that they could not locate the price records in this case, and added (see p. 150):

Either Dan Emmet came within the classification which entitled him to a differential from the list price, or he did not fall within such classification and as a consequence received no differential.

WATER COMPANIES.—In the early part of 1916 the question of the amount of differential which the oil companies would allow the water companies in the Imperial Valley of California, i. e., companies furnishing water for irrigation purposes, led to a number of conferences between the local representatives of the Standard Oil Co. and of the Union Oil Co. On January 11, 1916, C. W. Ralph, manager of stations of the Union Oil Co., wrote to F. E. Albright, district sales manager at El Centro, Calif., as follows:

We see in your FEA–889, of December 27, you advised us you were going after the Refined Oil business of the Imperial Water Company No. 1, but did not have much hope of getting it, etc.

Wont you please advise us what your quotations were to this company and who secured the business; also what price they got it at, if it is possible to get this information.

We are accused by our competitor of offering gasoline at 1¢ off the market, which was satisfactory, but we further offered 1¢ off on distillate. We phoned you in reference to this so as to get the matter straightened out and we were very much pleased to be advised that our competitors were wrong in their assumption that you had done anything out of line and that you really only offered ½¢ on distillate and 1¢ on gasoline.

We know that you appreciate there will always be charges and counter-charges in reference to our own representatives as well as our competitors' representatives not acting in good faith as to price making. This always has existed and no doubt always will. But after all, we still believe that confining

ourselves to the marketing of our products at a profit and securing as much for them as our competitors get, will give us more satisfactory results and less friction than so-called "fighting."

We would, at all times, wish to maintain our position and not give way at any point or lose any business, but should we be forced to do anything which apparently is out of line, try and be fortified so that we can protect ourselves in every way. We are no doubt misled by our competitors but we will use every effort we can here to keep you posted as fully as we can. In return, do not hesitate to hand us any information which you can get hold of, which looks to you as not being in accordance with good business.

In his reply to the above, under date of January 12, 1916, F. E. Albright stated that the bid submitted for the Union Oil Co. was 1 cent per gallon off of the retail price for gasoline and one-half cent per gallon off for engine distillate, while the Standard Oil Co. had agreed, according to the superintendent of the water company, to continue the old price, which was equivalent to 2 cents per gallon off the retail price for gasoline and 1 cent per gallon off for engine distillate.

In the same letter F. E. Albright wrote:

Mr. Woodward has not acted in good faith with me, as I have taken up with him, whenever instructed to do so by you, matters of this kind, asking what price had been made, and what their intentions were. Instead of doing this, I find he has reported the matter in to Los Angeles in an endeavor to create a disturbance.

We are at this end willing at all times to follow out your wishes and cooperate with the Standard Oil Company in matters of price, but it is impossible for one party to do it all. However, I am not finding fault, and will continue to do as I am told so long as I stay in the service.

Under date of January 14, 1916, C. W. Ralph, manager of stations of the Union, wrote in reference to the above:

In reference to our competitors' representative not acting in good faith with you, the writer appreciates it is very annoying and unfair, but let us continue to do our part by maintaining prices, playing fair with all of our customers, and we both know that this will work itself out satisfactorily. Whenever you find anything that is a specific case where our competitors are not, from your point of view, living up to fair business practices, give us the information and we will try our best to lend all assistance possible to straighten out conditions of this kind.

The Union Oil Co. and the Standard Oil Co. agreed on a differential from the retail price to be given to the water companies of the Imperial Valley in May, 1916, according to the following letter written by C. W. Ralph, manager of stations for the Union Oil Co., to F. E. Albright, district sales manager at El Centro, Calif., on May 27, 1916:

Replying to your letter under date of May 13th FEA-1161, the writer has discussed this situation from every angle with our competitor and we have agreed that all the Water Companies in the Imperial Valley are entitled to only 1¢ on gasoline and ½¢ off on distillate, as they are in the same class as municipalities.

Our competitor has written a letter to their representative in the Imperial Valley that their quotation of 2¢ off on gasoline to Water Companies No. 1, 5, 7 and 8 must be withdrawn immediately and that the best figure on which they could sell them in the future is 1¢ off on gasoline and ½¢ off on distillate.

We realize full well that a good many of the Water Companies use more supplies than an ordinary garage, but the garage man makes his living out of his supplies and it is up to us to draw the line some place. We have agreed that even if the Water Companies consider themselves a garage and equipped as a garage, we still will not recognize them as a garage and that absolutely

no quotations or prices can be made with any of the Water Companies in the Imperial Valley which are not in line with the above figures—namely, 1¢ off on gasoline and ½¢ off on distillate.

As we have stated above, we have gone into this subject from every angle and we believe that this is the surest and best way to clean up the situation. We see no occasion where it would ever be necessary to make a special price to any of the Water Companies, but if such should arise, we have agreed with our competitor, that on account of the large amount of business involved that we will make no special price without first advising them under the conditions under which we are doing so. They have also agreed to do the same. If you are selling any Water Companies in the Imperial Valley gasoline at 2¢ off list you will please discontinue making this differential and make a differential of 1¢ off on gasoline and ½¢ off on distillate. Your competitor should receive his notification of this change Monday morning at the same time you receive this letter.

Apparently the Union agent in Imperial Valley did allow some of the water companies a discount of 2 cents per gallon on gasoline and 1 cent per gallon on engine distillate, as the Standard Oil Co. states in its answer (see p. 150):

Our records do show that in June, 1916, prices were authorized to Imperial Water Companies: 2¢ off our market price, date of delivery, on Red Crown gasoline, and 1¢ off our market price, date of delivery, on engine distillate. These differentials were made to meet competitive prices.

VARNEY BROTHERS.—Early in 1916 the question as to the classification of the Varney Bros. stores in the Imperial Valley led to conferences between the representatives of the Union Oil Co. and the Standard Oil Co. Before this case was finally settled W. L. Standard of the Union Oil Co. examined the records of the Standard Oil Co.'s agent covering their transactions with Varney Bros.

Under date of January 14, 1916, C. W. Ralph, manager of stations of the Union Oil Co., wrote F. E. Albright regarding the price charged Varney Bros., who had stores at several places in the Imperial Valley, for kerosene, in which he outlined the attitude of the Union as follows:

We note you state you have been giving the above concern ½¢ more off on kerosene than the Standard Oil Company are allowing, as per instructions from Mr. Dunsmore of some time ago.

We know that you will appreciate [that] should we continue to cut our competitors' prices in this way, it will make them feel that we were not doing our part in reference to maintaining prices and would suggest that you make your prices to Varney Brothers in accordance with the prices our competitors are getting for the same products. We can see no business reason why Varney Brothers would not pay us as much as they would pay our competitors.

In lining up prices in this way we believe it will eventually work to a more satisfactory method of marketing our products, and should our competitors cut prices in any instances, please advise us, giving us the name of the parties to whom they make the cut and kind of goods they are cutting on and we can assure you every effort will be made on our part to get matters of this kind adjusted.

On April 27, 1916, F. E. Albright was informed by C. W. Ralph, manager of stations of the Union, that Varney Bros. were to be charged "regular prices on kerosene" by the Standard, as shown by the following:

Our competitors advise they are going to confine the above concern to their regular prices on kerosene oil, both as to bulk sales and cash sales. We certainly hope that they will do this and that you will be able to meet this condition and still retain their business and good will.

F. E. Albright replied to the above in part as follows on April 29, 1916:

Replying to the above, I regret to say that we have lost some of the stores operated by the above concern, and understand that we will lose the whole business. You letter states that the Standard will confine the above concern to regular prices on kerosene on bulk sales and cases, but does not say what their regular prices on case goods are. If they handle this business the way they are now handling the Imperial Water Company No. 1, we cannot hold out much hope of keeping this business, or any other they may go after.

After examing the records of the Standard Oil Co., W. L. Standard, of the Union Oil Co., was apparently satisfied that the former company was "playing fair," as shown by the following excerpt from a letter written to F. E. Albright on May 22, 1916:

Our competitor showed the writer his records on Varney Brothers and it looks very much as though we still have the bulk business in all of their stores. We still enjoy the case business, also at Brawley and Holtville. However, our competitor has sold some case kerosene at Calexico Store at 20¢. The writer saw these figures for kerosene under date of 4/29 at 20¢.

It looks as though they are playing fair on this particular piece of business and our competitor stated that they are absolutely playing ball according to the rules, so if there is any further assistance we can give you on Varney Brothers, all you have to do is let us know and we assure you that we go to the bat quick as we have made certain people to understand that the rules must be lived up to, or we certainly will take the business at their quoted prices.

Cafés and restaurants in Imperial Valley.—J. L. Quinn, the Los Angeles sales manager of the Standard Oil Co., wrote to the home office under date of October 24, 1916, requesting authority to allow the large restaurants in the Imperial Valley, which used from 5,000 to 6,000 gallons of engine distillate per year, one-half cent per gallon off the market price for engine distillate, in order "to meet this competition" of the Union Oil Co. This request was granted on October 26, 1916, by H. T. Harper, sales manager of the Standard Oil Co., who requested a list of the concerns that would receive this special price. This list was furnished November 16, and on November 28 J. L. Quinn was directed to have any future special prices authorized by the home office. On December 7 J. L. Quinn requested authority to allow restaurants and cafés using in excess of 6,000 gallons per year, "irrespective of the Imperial Valley," this same discount, because "the Union Oil Co. are allowing all restaurants in this field" one-half cent off the retail price. Under date of December 11, 1916, the home office of the Standard Oil Co. declined to authorize this concession to sections "other than those affected by your recent authority;" but on January 17 and 26, 1917, the sales manager of the Standard authorized the local agent to grant this special price to other restaurants in the Imperial Valley. (See pp. 150–151.)

In a letter dated January 30, 1917, C. W. Ralph, of the Union Oil Co., wrote F. E. Albright regarding the practice of allowing restaurants and cafés a differential of one-half cent per gallon on engine distillate. (See Exhibit 13, p. 209.) It was claimed by the Union that the Standard had been allowing this discount for a period of eighteen months; while, as stated above, the Standard contended that this allowance was made to meet the competition of the Union. The last paragraph of the above letter stated:

It is further claimed that the Guy McMain bakery do not operate trucks and thus are entitled to no discount. We would like very much to clean up this situation and know of no reason why we should not clean house effective February 1st. You will, of course, appreciate that if any of these cafes or restaurants are operating commercial vehicles for commercial purposes they are thus entitled to 1¢ off the market.

As noted above, on January 30 C. W. Ralph, sales manager of the Union Oil Co., wrote that he knew of no reason "why we should not clean house effective February 1;" and on the following day, January 31, J. L. Quinn, Los Angeles district manager of the Standard Oil Co., wrote to H. T. Harper, the Standard's sales manager, as follows:

Effective February 1, 1917, we have discontinued allowing special price of 1¢ per gallon off on Engine Distillate to various restaurants throughout the Imperial Valley; henceforth our price to them will be full list price.

The home office of the Standard wrote J. L. Quinn on February 2, inquiring the reason for the withdrawal of this special price to restaurants in the Imperial Valley, and were advised on February 7:

The reason we withdrew this price was that the Union Oil Company have notified their restaurant trade that hereafter all Distillate to them would be list price.

The action of J. L. Quinn, the Los Angeles district manager of the Standard, in withdrawing this special price was approved by the home office which, however, criticized him for withdrawing it without first having the approval of the home office. (See p. 151.)

Section 8. Agreements on price boundaries.

RELATION OF PRICE TERRITORIES TO PRICE MAINTENANCE.—An important matter to be considered in the maintenance of uniform prices is the territory to which they apply. This is especially important in the petroleum industry by reason of the fact that deliveries to outlying points are made in tank wagons from tank-wagon stations which are located at advantageous central points. A differential over the wholesale price to garages and service stations located within the territory contiguous to a tank-wagon station is charged for deliveries to garages and service stations located at outlying points. In order to maintain uniform prices the different marketing companies have adopted identical boundary lines between territories taking different prices.

SAN BERNARDINO-REDLANDS BOUNDARY.—The following letter, dated December 1, 1915, written by C. W. Ralph, of the Union Oil Co., to T. W. Okey, sales manager of the Ventura Refining Co., shows how carefully the dividing lines between different towns in southern California were fixed:

Confirming our conversation of this date, we are pleased to give you information regarding a definite line between Redlands and San Bernardino Territory.

The line starts at Harlem Springs, which is in the Redlands Territory and extends South on California Street to the River; then Southwest in a westerly direction to Mountain View Ave., taking in both sides of this Avenue, South to the outer boundary of the territory, placing the district Northwest and West of this line in the San Bernardino district and East and South East in the Redlands District, which throws Redlands Junction or Bryn Mawr into the Redlands Territory. Both sides of Mountain View Ave. are in the Redlands Territory.

This boundary line has been adhered to by the Standard Oil Co. and ourselves and according to our conversation you will instruct your San Bernardino Representative to be governed by this boundary line.

The Redlands Territory takes a differential of ¼¢ per gallon over the San Bernardino and Colton Territory.

Hoping that this will clear up the condition and that there will be no further tension as to the boundary line, I beg to remain.

According to a statement submitted by the Standard Oil Co., "the boundary lines of the Redlands district are the same to-day (September, 1921) as they were in January, 1914." (See p. 164.)

LOS ANGELES-PASADENA.—Prior to February 21, 1916, South Pasadena took the Los Angeles price on refined petroleum products, but on the above date South Pasadena was placed in the Pasadena territory, which was charged one-half cent over the Los Angeles price, as shown by the following extract from a letter of February 21, 1916, from C. W. Ralph, the manager of stations of the Union Oil Co., to F. H. Williams, district sales manager at Pasadena, Calif.:

Effective this morning, the Southern Pasadena Territory which at the present time takes Los Angeles prices on all refined oils will take the Pasadena price which is ¼¢ over Los Angeles.

This makes an advance in South Pasadena Territory of ¼¢ on all Refined products. As a matter of record, will state that the former dividing line between Pasadena and South Pasadena was the Arroyo on the West, Columbia on the North, S. Garfield on the North East and Huntington Drive and Moffatt Str. on the South.

The dividing line effective February 21st, between Pasadena and Los Angeles territory will be the Arroyo on the West, Moffatt Str. on the South, and Meridian Str. on the East. This latter Str. is one block from Huntington Drive and joins into Palomo and Parke Str. From the map, Parke Str. comes down to Huntington Drive and a line from Parke Str. across Huntington Drive is what is now the Northern City limits of Los Angeles, including Bairdstown. The above would be the dividing line between Los Angeles Prices and Pasadena Prices. This information was taken from a map outlined by our competitor.

South Pasadena took the Pasadena price from 1904–1909, while from 1909–February 20, 1916, South Pasadena took the Los Angeles price, which was one-half cent per gallon under the Pasadena price. Beginning with February 21, 1916, the boundary between Pasadena and Los Angeles was changed, transferring South Pasadena from the Los Angeles to the Pasadena territory. (See p. 167.)

Section 9. Resale price maintenance.

The question of maintaining resale prices by refusing to sell to retailers who cut prices arose at San Diego, Calif., and at Phoenix, Ariz., in 1917. The attitude of the Union Oil Co. in respect to such sales is stated in a letter under date of February 23, 1917, written by C. W. Ralph, manager of stations, to L. H. Fish, district sales manager at San Diego, as follows:

We very much appreciate your letter of the 20th inst. to which was attached newspaper clipping setting forth the fact that on Saturday and Sunday the above will give to all auto owners who present the newspaper clipping a 50¢ bottle of auto polish.

It must be gratifying to Messrs. Jeffries and Sykes of the Standard to note this newspaper ad. which reads in part as follows:

Red Crown Gasoline and Oils are always sold below market price by Mr. Wood.

There is an old saying that reads "It pays to advertise" but we are of the opinion if Messrs. Jeffries and Sykes continue to serve this price cutter, that you should be successful in securing whatever garage trade they have by

telling your customers that the Union Oil Company will refuse to furnish goods to a persistent price cutter, and in taking this position, we are backed up by the advice of our attorneys.

The Standard Oil Co. have it right in their hands to eliminate this unfair practice. It looks as though they are so anxious to secure gallonage that they have no regard as to the damage done their other customers. The S. O. Co. here are well aware of the fact we have practically eliminated our cut price customers in this city. Would suggest you stay right with Messrs. Jeffries and Sykes, and show them they owe it to the legitimate garage and filling station dealers in your city. Pound them on this proposition vigorously, even to the extent of making yourself obnoxious to them.

Apparently the "fact we have practically eliminated our cut-price customers in this city" refers to Los Angeles, as the above letter was written from that city.

The matter was taken up with the local agent of the Standard, who promised to take it up with his home office, as shown by the following letter written by L. H. Fish to C. W. Ralph on March 6, 1917:

Referring to your letter of February 23rd on the cut prices by the above dealer. I informed Mr. Sykes one day that the paper in East San Diego had an article regarding Mr. Woods selling Red Crown Gasoline and Oil below the market price.

I was in conversation with Mr. Sykes this morning and he informed me that he had taken up the matter of cut prices with the head office and they have asked him for a letter regarding the situation. He informed me, he gave them this letter about Saturday of last week. He promised to take the matter up with me as soon as he hears from them.

The legal department of the Union Oil Co. was asked for its opinion regarding the legal right of that company to refuse to sell a retailer because the retailer did not maintain the Union's regular retail prices, and on July 24, 1917, C. W. Ralph, manager of stations for the Union, wrote L. H. Fish, of the same company, regarding the attorneys' decision, as follows:

Our attorneys maintain that a reseller who fails to maintain our established price is doing the company and our goods an injustice. We have always taken the position of not cutting a man off without giving him say 24 hours' notice. Our method of handling would be about as follows: As soon as you learned that the reseller was cutting our price, we would go to him in a neighborly way and endeavor to show him that he was doing ourselves and our customers an injustice in cutting the price. We would attempt to convince him that he should maintain prices. Failing in this we would then verbally notify him that he would have to make other arrangements for deliveries and after that time we would refuse to deliver. If there is any further information desired kindly advise.

The attitude of the Standard Oil Co. was in direct opposition to that of the Union. The Standard Oil Co.'s agent at Phoenix, Ariz., took up the matter of compelling dealers to maintain list prices on Red Crown gasoline with the San Francisco office on May 9, 1917, as follows:

I would like to have you advise suggestions with reference to our rights lawfully and legally of compelling dealers to maintain our list prices upon Red Crown Gasoline. While we do not operate service stations in Arizona, we do a retail business to this extent, that we sell to customers by tank wagon, at the prevailing list prices.

There has always been more or less price cutting within the state, but to no great extent until very recently. I refer especially to the period since the Union Oil Company have placed their coupon books in the state. The price per gallon to the customer purchasing the coupons being 1¢ less than the pre-

vailing list price. This has resulted in a great many of our dealers selling Red Crown Gasoline direct from the pump to any one sometimes at 1¢ under the list price and in various instances at 1¢ under the list price.

All of this has generated a large amount of ill feeling, which has demoralized conditions. Before I take any steps in the matter, I would like to be guided by the experience you have developed on the Coast in the past two years in handling problems of this kind. I feel that eventually we will be compelled to place service stations all over Arizona and at that time, it would be desirable from every viewpoint to have our list prices maintained.

Such being the case, we should if possible begin to assert our rights regarding this question. It would seem to the writer that if we can do so lawfully, that we should compel our dealers or any one who purchases Red Crown for resale to maintain our list prices. This is an advertised product and we assuredly deserve some protection on the price of the resale.

H. T. Harper, of the Standard, replied as follows on May 21, 1917:

Referring to your letter of May 9th, in which you ask that we advise you our legal rights as regards compelling dealers to maintain our list prices on Red Crown Gasoline:

We are under the impression that, from your experience with the Company, you understand its marketing policies. The Company does not dictate the prices that handlers of our products shall make. We possibly have some legal right to do so but we have never exercised that right, nor does there appear to be any reason at this time for doing so. This policy has been followed for many years, and we have never recognized the necessity for handling the matter in any other way. We sell our goods to a dealer, garage, or any re-handler, and it is his privilege to do what he likes with them.

Section 10. Competitive conditions in sale of fuel oil.

A uniform price for fuel oil, with few exceptions, has been maintained on the Pacific coast since 1914. Some price competition was started in the Seattle district at Vancouver, British Columbia, in the early part of 1915, which gave the Union Oil Co. and the Imperial Oil Co. (Ltd.), of Canada, some concern. However, later the General Petroleum Co. got in line with the other large companies. In May, 1916, the Union Oil Co. refused to quote fuel oil to the Alaska Gastineau Mining Co., a customer of the General Petroleum Co. Owing to the fuel-oil shortage in 1920 the companies confined their sales to regular customers, and there was some variation in the prices made by the different companies.

Competitive conditions in the sale of fuel oil in California in 1914 are set forth briefly in a letter from C. G. Sheffield, sales manager for the Union Oil Co., to L. P. St. Clair, president of the Independent Oil Producers' Agency, on February 3, 1914, as follows:

Acknowledging receipt of your favor of the 28th, which was delayed in reaching us on account of recent interruption to railroad service; Issuing a new fuel oil price schedule without conferring with you was an oversight on my part. Naturally if there had been a decline in prices, I would have referred the matter to you immediately, but in the case of an advancing market, based on our past policy, it did not occur to me to await instructions but simply to see that you were promptly advised through Mr. Sclater of the advance in price.

As the matter now stands, the Standard appear to be living up to the advance, although they had a few sleepers whom they protected. The Associated have been quoting 50¢ in the fields up to today, in fact, they were afraid we might get their contract with the Inyo Developing Company,—2000 barrels a month (D. O. Mills interests) and quoted either 48 or 49¢, so as to be safe: This is Mr. Whitehead's usual policy. From information at hand today, believe they have advanced their price to 55¢. In the meantime, we have taken in the neighborhood of 70,000 barrels a month new business. This amount

covers contracts mostly from the Standard taken on during the past three months. The Standard are apparently very anxious to hold to the advanced prices even though they lose a little business.

The Union Oil Co. had an exclusive sales contract with the Independent Oil Producers' Agency, of which L. P. St. Clair was president.

On February 4, 1915, Alex Sclater, who was vice president of the Union Oil Co. at that time, wrote from Montreal, Canada, to C. G. Sheffield, sales manager of the Union Oil Co., in part as follows:

I am in receipt of your telegram relative to the situation in Vancouver. I saw Mr. Teagle while in Toronto. He is not at all encouraged about the situation up there. He is of the opinion that the General Petroleum are making contracts below the market, and they make the statement that they are in business in Vancouver, and intend to meet any prices that are made. I explained the General Petroleum situation as far as I know it, and as expressed to me in a recent letter by Mr. W. L. Stewart, that they had about as much oil tied up as they would venture, on big contracts at low prices, and told him that we would be quite willing to establish a market of 5¢ above the Seattle price, but he was unwilling to state that this would suit them, and we left the matter that way.

Mr. Teagle, now president of the Standard Oil Co. (N. J.), was president of the Imperial Oil Co. (Ltd.) at that time.

C. G. Sheffield transmitted the above letter to W. L. Stewart on February 13, 1915, with the following comment:

You will note that the Imperial Oil Company (Standard) are worried over the General Petroleum Company's tactics in Vancouver. They certainly have been a very disturbing element and have directly caused us the loss of a great deal of money in that territory.

It is a surprise to me that the General Petroleum Company tolerates this man Horne. He was formerly with us in Seattle and was dismissed for the identical tactics he has since been pulling off for the General Petroleum Company in Seattle, Vancouver and Victoria. A man that, in the face of a falling market, goes around and boasts that his company will likely make quotations to beat the best that have been made, should not be tolerated in the oil business. I question very much whether the General Petroleum Company are fully alive to the character of this individual. If you ever have a favorable opportunity to represent him to his own people in his true light, I hope you will not overlook it.

In May, 1916, the Alaska Gastineau Mining Co. approached the Union Oil Co. for a quotation on fuel oil at Juneau, Alaska. On May 24, 1916, Mr. Clagett wrote to Alex Sclater, vice president of the Union Oil Co., as follows:

Mr. Monroe, of the Alaska Gastineau Mining Company, states that he has received two or three letters recently from their General Manager, stating that they want to make a contract for fuel oil with us, as per recent communication with you. They state that they do not consider that they have any contract with the General Petroleum Company. They want to be sure of their future supply of oil. They further state that the General Petroleum Co. has fallen down in so many ways, and has broken the terms of their agreement with them in so many ways, that they feel that they are at perfect liberty to contract with any one else who can supply them.

I told him that we did not look with favor upon making a contract with any concern who was under contract with another oil company, but he requested that I take the matter up again with you, and see if we could not make them a quotation. It would be very easy for us to handle the business.

He requested, however, that we make no mention of this to the General Petroleum Company. I told him that I would put the matter up to you again and see if anything could be accomplished.

On June 1, 1916, W. B. Robb, secretary of the Independent Oil Producers' Agency, wrote to C. G. Sheffield, manager of the fuel oil department of the Union Oil Co., as follows:

ALASKA GASTINEAU MINING CO.

I have your favor of the 31st ult., 1875 on the above subject:

I would not be favorable to a competitive bidding on any business that belongs to our competitors, and particularly the General Petroleum Company. It is my understanding from your communication that in acquiring the business it would mean absorbing an obligation of the General Petroleum Company at a time when it must be generally conceded that our fuel oil business has reached a maximum figure under present conditions. I note that the existing contract with the General Petroleum Company does not expire until August 31, 1917. (?)

Will you kindly inform me if there are other reasons than present associations now existing with the Guggenheim interests why we should take on this business.

Chapter VII.

RESTRICTION OF COMPETITION AMONG INDEPENDENT MARKETERS.

Section 1. Competitive position of the small independent marketers.

The information regarding the competitive activities of the so-called independent marketers was secured from the files and records of the Independent Petroleum Marketers' Association and from the files of the members of that organization. The examination covered the period from the organization of the association to the end of 1920. There are 21 relatively small refining companies in California, most of which are located in the vicinity of Los Angeles. Some of these small companies have their own service stations in Los Angeles and vicinity. They also sell extensively to jobbers in southern California, and shipments are sometimes made outside of California. These companies do not retail their petroleum products in northern California, Oregon, or Washington. The existence of these small refiners should tend to make Los Angeles and vicinity a highly competitive market, but, through price agreements and otherwise, competition has often been stifled.

Section 2. California antitrust laws.

In March, 1907, a very strict antitrust law was enacted in California which made it unlawful for two or more persons, firms, partnerships, corporations, or associations of persons to agree to limit or reduce production, to increase or reduce prices, to prevent competition in the manufacture, transportation, sale, or purchase of any merchandise, produce, or commodity, to make or enter into or execute or carry out any contracts, obligations, or agreements not to sell below a fixed price or value, or to agree in any manner to maintain prices at a fixed or graduated figure, or to pool, combine, or directly or indirectly unite any interests connected with the sale or transportation of any article or commodity whereby its price might be affected in any manner. (See Exhibit 14, p. 210.) This law was amended in 1909 by a provision to the effect that "no agreement, combination, or association shall be deemed to be unlawful or within the provisions of this act, the object and business of which are to conduct its operations at a reasonable profit or to market at a reasonable profit those products which can not otherwise be so marketed." (See Exhibit 15, p. 212.)

The Supreme Court of California in January, 1919, in affirming a conviction under the Cartwright antitrust law of 1907, stated that the provision in the amendment of 1909 afforded an exemption, under certain conditions, from the operation of the general law, but that the burden was on the accused to prove that the acts charged against him came within the proviso of the amendment.[1] (See Exhibit 16, p. 213.)

[1] People v. H. Jevne Co. et al., 178 Pac. Rep. 517.

California also has an antidiscrimination law, which was enacted in 1913, making it unlawful to discriminate between different sections of the State by selling or furnishing any commodity or service "at a lower rate in one section, * * * than in another, after making allowance for difference, if any, in the grade, quality, or quantity, and for cost differences," due to distance from point of production and expense of distribution and operation. There is a provision in the act which allows "the meeting in good faith of a competitive rate." (See Exhibit 17, p. 216.)

Section 3. Organization of Independent Petroleum Marketers' Association.

CONDITIONS PRIOR TO ORGANIZATION.—In 1912 there were about 15 small independent refining companies operating in southern California located in the vicinity of Los Angeles. Some of them were connected by short pipe lines with the local oil fields, while others secured their supply of crude petroleum by tank cars from the oil fields of the southern part of California. The rapid development of the industry in California during the years 1912 and 1913 brought about a greatly increased production of gasoline which resulted in sharp price competition, especially in the Los Angeles market. The chief factors in causing the extensive decline in the retail price of gasoline, extending over the entire Pacific coast territory, appear to have been (1) the overproduction of light crude petroleum, from which the greater part of the gasoline is produced, (2) the keen sales competition of the small refiners, and (3) the entrance of the Shell interests into this territory.

In December, 1912, some of the small marketing companies at Los Angeles cut the price of gasoline from 1 to 2 cents per gallon, and throughout 1913 and 1914 price cutting continued until prices were so low and competition so keen that the small refiners were said to be either losing money or making very small profits. H. H. Maxson, who has been secretary of the Independent Petroleum Marketers' Association since its organization, described the conditions of competition which existed from 1913 to 1915 as follows:

> Further replying to your request of recent date and concerning memoranda submitted as to activities of the Independent Petroleum Marketers' Association, beg to say that in the year 1915[1] the Independent Petroleum Marketers' Association found it necessary to associate themselves together for the purpose of protecting themselves against a competition which meant their ruin, and at that time it appeared to them that it was necessary to stabilize the business in this vicinity or the "Independents" would be entirely eliminated from the field. It was a long and hard struggle, and it was only through the cooperation and assistance rendered by frequent meeting and exchange of views, that the independent marketers of gasoline and oil products have survived the days of ruinous competition.[2]

At a hearing before the Commission, held October 7, 1921, H. H. Maxson stated that "in fact, two plants went out of existence at that time. There were others that barely survived and have been able to remain in business."

As already stated, in the fall of 1914 the Standard Oil Co. decided to extend its sales directly to the consumer and purchased the service stations of the National Supply Co., 17 of which were in Los Angeles. Just prior to entrance into the retail market it fixed

[1] Should be 1914.
[2] See Exhibit 4, p. 181.

the margin between its wholesale and retail prices of gasoline at 2 cents per gallon. Soon after this the 2-cent differential became generally recognized. On October 22, 1914, the Standard reduced the wholesale tank-wagon price of gasoline from 13¼ to 12¼ cents per gallon at Los Angeles and San Francisco. The small refiners in southern California, believing that a fight with the Standard in the retail market could only result in their own destruction, met on November 21, 1914, and formed an association to protect their mutual interests.

ORGANIZATION AND MEMBERSHIP OF THE MARKETERS' ASSOCIATION.—An association of the independent marketers of the petroleum products in southern California, known as the Independent Petroleum Marketers' Association, was formed on November 21, 1914, with the Los Angeles Refining Co., Densmore-Stabler Co., Service Oil & Asphalt Co., A. F. Gilmore Co., Puente Oil Co., Southern Refining Co., Pinal-Dome Refining Co., and the Kellog Oil Co., as charter members. On February 9, 1915, the organization was incorporated as the Independent Petroleum Marketers' Association of California (Inc.). According to the annual report of the secretary of the association, dated February 9, 1916, as far back as the fall of 1913 representatives of the companies which later comprised the association had met in an informal way to discuss certain phases of the oil business.

On September 17, 1915, an amendment to the by-laws was adopted by which small petroleum marketers, who could not afford to pay the full association dues, were admitted to associate membership. The article stated that the associate members would be "entitled to certain privileges in the way of information, etc., which this corporation is able to furnish." The membership of the association on January 18, 1921, is shown in the following table:

TABLE 24.—*Membership of the Independent Petroleum Marketers' Association of California (Inc.), Jan. 18, 1921.*

Company.	Main office.	Date joined.
FULL MEMBERS.		
Associated Oil Co.	San Francisco.	November, 1920.
Continental Petroleum Co.	do	November, 1917.
General Petroleum Co.[1]	Los Angeles.	April, 1916.
Hurley-Smith Co.	do	February, 1915.
Richfield Oil Co.	do	Do.
Turner Oil Co.	do	Do.
Union Oil Co. of California	do	September, 1916.
Vernon Oil Refining Co.	do	October, 1917.
Wallace Refineries	do	February, 1915.
Wilshire Oil Co.	do	Do.
ASSOCIATE MEMBERS.		
Diamond Oil Co.	do	April, 1916.
E. A. Doran Oil Co.	do	May, 1916.
Fletcher Oil Co.	do	July, 1920.
A. F. Gilmore Co.	do	February, 1915.
J. M. McLeod	do	August, 1920.
Pacific Wood & Coal Co.	do	July, 1916.
Petroleum Lubricants Co.	do	August, 1915.

[1] The General Petroleum Corporation was incorporated May 25, 1916, and took over the property and business of the General Petroleum Co. on July 1, 1916.

A list of former members of the association who had resigned prior to January 18, 1921, is given in Exhibit 18, page 218. Some of the companies that withdrew from the association went out of business, some were taken over by other companies, while still others withdrew because they were dissatisfied with the association. A list of the officers and directors of the association on January 18, 1921, is shown in Exhibit 19, page 218.

The association was very desirous of securing the membership of the large independent marketers of petroleum products. The annual report of the association of February 9, 1917, contains the following regarding the membership of the Union Oil Co.:

> In August we landed the biggest of the [them] all—"The Father of the Independents" in California, the Union Oil Company. With their prestige and advice and support, I think we need have no further fear for the safety of our organization. Our foundation is established. From now on we need only build up a structure.

The membership of the Shell Co. was unsuccessfully solicited on various occasions. The General Petroleum Co. was the first of the large companies to join and the Associated Oil Co. the last. A letter dated October 22, 1920, soliciting the membership of the Associated Oil Co., written by H. H. Maxson, secretary of the association, is interesting in tone. One paragraph reads:

> Mr. C. W. Ralph of the Union Oil Company and H. S. Botsford of the Puente Oil Company expect to be in San Francisco next week, and I have asked them to take up with you the subject of "Cooperation" and we trust that at no distant date we may enjoy the privilege of accepting your application for membership in our Association.

The Associated Oil Co. joined November 18, 1920.

ORGANIZATION OF THE CREDIT BUREAU.—On October 27, 1915, the Oil Men's Credit Bureau was organized by the Independent Petroleum Marketers' Association for the benefit of association members and allied interests. The work of this bureau is to collect information on the financial condition of creditors and rate them accordingly. A list of the members on January 18, 1921, is shown in the following table:

TABLE 25.—*Membership of the Oil Men's Credit Bureau, Jan. 18, 1921.*

Member.	Address.	Date joined.
Ralph Hamlin	Los Angeles	April, 1920.
McCoy Motor Supply Co	do	March, 1919.
Panama Lubricants Co	do	October, 1919.
Puente Oil Co	do	July, 1920
Standard Oil Co. (California)	do	September, 1919.
Tide Water Sales Corporation	San Francisco	January, 1921.
Valvoline Oil Co	Los Angeles	March, 1919.

The credit bureau has its office in the rooms of the association and H. H. Maxson is secretary of both organizations. Up to January 18, 1921, five other companies had joined and resigned from the credit bureau. The list of former members is shown in Exhibit 20, page 218.

THE LUBRICATING OIL SECTION.—The organization of the lubricating oil section was described as follows in a memorandum of the Independent Petroleum Marketers' Association meeting of January 11, 1918, written by W. L. Standard, of the Union Oil Co.:

A Lubricating Oil Section of the Association has been formed and the Panama Lubricants Co., also Austin, Bryant & Carter Company have joined the Association. The Lubricating Section will be of particular advantage in reference to price of pump tanks, wood barrels, etc. The Lubricating Section will formulate a list as to who are bona fide jobbers in the City of Los Angeles. The Panama submitted their prices on Eastern stocks to jobbers in the City of Los Angeles. We naturally will not do this as we have positively refused to sell any Eastern Stocks to jobbers in the City.

The following letter sent to the association members by the secretary, under date of January 15, 1918, shows that the association was attempting to standardize marketing methods:

At a recent meeting of the Lubricating Oil Section of the Association was discussed the prevailing customs of various marketers in the handling of oil containers. The enclosed schedule gives some idea of the prices charged by certain companies, some of which sell the packages outright; while others merely loan.

Kindly fill in the blank spaces with charges you make for various containers, and under "Remarks" indicate whether you loan or sell same, and any other suggestions you have to offer toward solving this problem so as to be fair to all concerned.

A conference was held on January 23, 1918, at which time a schedule of charges for oil containers and classification of marketers was agreed upon, as shown by the following letter dated January 23, 1918:

At a conference of the Lubricating Oil Section of the Association held to-day, it was the consensus of opinion that for purposes of fair competition a uniform schedule of charges for oil containers and a classification of oil marketers should be adopted.

Enclosed find copies of such schedule and classification which have been adopted by the Association, and such Lubricating Oil Marketers as are not members will also be invited to comply with same.

Conference will be called from time to time as changes are necessary.

The lubricating oil section was finally disbanded because of the practical impossibility of supervising the marketing policy of a product that is sold in so many different grades and containers, and which, moreover, meets the competition of lubricants manufactured east of the Rocky Mountains.

Section 4. The California Petroleum Exchange.

On August 14, 1918, some of the members of the association organized and incorporated the California Petroleum Exchange for the purpose of purchasing crude petroleum and the disposal of surplus stocks of refined products. The following refiners joined the California Petroleum Exchange:

Asphaltum & Oil Refining Co., Los Angeles.
Richfield Oil Co., Los Angeles.
Turner Oil Co., Los Angeles.
Vernon Oil Refining Co., Los Angeles.
Wilshire Oil Co., Los Angeles.

H. H. Maxson, the manager and secretary of the Independent Petroleum Marketers' Association, was appointed secretary of the exchange, and offices were maintained in rooms adjoining those of the Independent Petroleum Marketers' Association. When the organization of the exchange was being planned, in the spring of 1918,

H. H. Maxson sent out the following letter, dated April 4, 1918, to the Turner Oil Co. and other interested refiners:

For the purpose of determining more definitely the amounts of gasoline and engine distillate likely to be handled by our proposed selling and distributing agency, it is necessary to have some detailed information as to your production and sales over some fairly representative period. I have selected the six months beginning with September last up to and including Feb'y this year—a six months period for which you can no doubt give me your monthly manufactured and marketed output respectively on the two products in question.

This information will be held confidential if you so desire, but it is quite necessary in laying out the marketing policy proposed and more especially in determining the limits of surplus goods we are asking other marketers to dispose of pending the stabilizing of prices and credits and the general working out of our own centralized marketing plan. For this reason I am asking you to kindly fill in the blank spaces on the enclosed sheet and mail to this office at your earliest convenience.

The quantity of surplus stove and furnace distillate handled by the exchange during one year, as shown by the annual report of the secretary dated July 9, 1919, was 193 cars containing 1,090,708 gallons. These shipments were prorated among the exchange members, the Turner Oil Co. shipping the greatest quantity. Some engine distillate was shipped out of the territory, shipments being made as far east as West Virginia.

The exchange attempted to prevent the payment of large premiums for crude petroleum. H. H. Maxson, secretary of the exchange, informed the Commission at a hearing held October 7, 1921, that owing to the superior transportation facilities of the large companies the producer prefers to sell his crude to them instead of to the small refiner, who has to transport the crude by tank car. It was necessary for the small refiners to pay a premium in order to secure crude petroleum, and the producers succeeded in getting the refiners to bid against each other "until the prices being paid were as high as seventy-five cents to a dollar a barrel bonus." The attitude of the association toward this condition is shown in the following memorandum of an Independent Petroleum Marketers' Association meeting, dated February 14, 1917:

The question of a Purchasing Agency in connection with the I. P. M. A. was up for discussion and carried over to the next meeting. It seems as though two or three members of the Association have been bidding against each other for certain small productions. The Purchasing Department of the I. P. M. A. would take care of this situation and would tend to eliminate the bonus which is being paid by the small refinery at the present time. Mr. James went into this situation in detail and gave some very concrete examples of how the Purchasing Agency of the Mid-Continent Field Organization had saved their members thousands of dollars.

Apparently no definite action was taken on this matter until the spring of 1918. On May 18, 1918, the secretary wrote to at least six of the small refiners as follows:

At a meeting of the Independent Refiners held yesterday it was mutually agreed to furnish the undersigned with the names of the companies from whom they are now purchasing crude oil, together with the dates of expiration of contract held. This will be of benefit to you in that each refiner will be advised of oils now under contract to other refiners and as contracts are to expire conferences may be held as a means to prevent the payment of the exorbitant bonuses now exacted, as well as to promote more cordial relations between Independent Refiners.

This arrangement clearly indicates the intention on the part of the association members to eliminate competitive bidding if possible, but it is impossible to estimate to what extent this agreement affected actual prices paid for crude petroleum in southern California.

Section 5. Restriction of competition and price agreements.

RELATION OF THE ASSOCIATION TO PRICE AGREEMENTS.—Most of the cooperative activities of the members of the Independent Petroleum Marketers' Association since September 22, 1915, appear to have been devoted to agreeing upon and maintaining prices; but the association members did not want the record of such activities to appear as the action of the association. The association minutes of the meeting of February 2, 1915, contain the following resolution introduced by Mr. Bacigalupi:

Whereas, this Association was organized for the purpose of creating good fellowship among the members thereof, and

Whereas, there has been a tendency among some of the members of the Association to talk price and combinations, and

Whereas, there is a Federal and State law against combinations in restraint to trade, and

Whereas, this Association was organized solely for the uplift and betterment of the refining and marketing of refining [refined] products and good fellowship amongst ourselves, and

Whereas, it is the desire of the members of this Association to avoid doing anything in conflict with the laws of the State of California and of the United States.

Now, therefore, be it

Resolved, that this organization, as a body, refrain from talking prices or combinations at any of the Association meetings and that the President of this Association be empowered to forbid any discussion or references in any way pertaining to prices or combinations in restraint of trade at any of the meetings of this Association.

It was moved by Mr. Fleisher and seconded by Mr. Kellogg that the resolution be adopted. The motion was carried.

The official minutes of the association are particularly free from any reference to price agreements. The secretary and manager of the association, H. H. Maxson, stated that the memoranda regarding price activities that had been found in the files of the Union Oil Co. covered matters happening after the association meetings had adjourned.

NATURE OF COOPERATIVE ACTIVITY.—The members of the association interested in the sale of the various refined petroleum products met from time to time to discuss sales policies and price maintenance. The market prices of gasoline and engine distillate which they attempted to maintain were those named by the Standard Oil Co. Most of their agreements related to gasoline and engine distillate, but they were quite active in establishing and maintaining the prices of stove and furnace distillate. Before any uniform price agreement could be made to follow the prices of the large companies, it was necessary to make the marketing policies of the members of the association practically uniform with those of the large marketing companies. The secretary of the association, H. H. Maxson, in the association's annual report of February 9, 1916, characterized this stage of the development of the association as follows:

From this date one year ago begins what I have termed the period of Harmonizing. There were sixteen Independent marketers of petroleum products competing for the business on the basis of the lowest-figure-gets-the or-

der, often without regard for the quality of his goods, and frequently through some mysterious service of information that "so and so" was slashing prices. Naturally these gentlemen were more or less suspicious of one another, and until they had gained confidence in each other Harmony refused to abide.

COMPETITIVE CONDITIONS DURING 1913–1915.—During 1913 and 1914 and in the first six months of 1915 there was a price war on the Pacific coast. A number of new refining companies were organized in California during the flush production of crude petroleum in that State. The retail price of gasoline declined 3½ to 4½ cents per gallon at the principal marketing centers of the Pacific coast territory during 1914 and the first half of 1915. The Standard Oil Co. reduced the retail price in Los Angeles and San Francisco to $0.11 per gallon in July, 1915. This was the lowest price during the period and it was charged that this company intended to cut prices to a point that would eliminate the smaller refiners from the business. On September 17, 1915, the president of one of the small refining companies wrote to a stockholder of his company as follows:

> It seems to be the purpose of the Standard Oil Company to ruin all the independent concerns on this coast, and so far as our companies are concerned, have succeeded in making it very difficult for us to exist. We have operated our refinery the past two years at a loss, and the price of our crude oil at present brings only half what it formerly brought.

The situation of the small marketers during this period was described as follows by H. H. Maxson, secretary of the Independent Petroleum Marketers' Association, in a letter dated February 24, 1920, to Allen H. Wright, a press correspondent at San Diego, Calif.:

> The year 1915 found the oil business in California from the standpoint of a profitable industry at the ebb of its existence, with an over production of crude oil, which the cut-throat competition then prevailing between the Independent Marketers who were thereby placed at the mercy of the Standard, forced the gasoline market down to 11¢ per gal. retail, thus causing two of the oldest refineries, namely, Southern Oil Refining Co. and the Service Oil & Asphalt Co., to suspend operations. Subsequently the equipment of these two refineries was junked.
>
> Others struggled along until the cooperative spirit of the organization brought order out of chaos and eventually gave the Independent that standing which invited and secured the respect of their one big competitor, as well as impressed on the public that there were many reputable and well established brands of petroleum products on this market.

What made the existence of the weak independents possible during this period of sharp competition was the supply of crude petroleum from near-by oil fields and the low tank-car freight rate on tops, i. e., unfinished naphtha distillate, which was the same as the rate on crude petroleum. Following this period of keen competition the members of the Independent Petroleum Marketers' Association attempted to improve business conditions through agreements which related principally to prices, trade classification, and marketing territory.

NATURE OF PRICE ARRANGEMENTS.—Perhaps the most difficult practice to adjust to a uniform basis was that of granting price concessions from the market price. Constant vigilance was necessary in order to keep the various types of differentials uniform. Frequently after an agreement on the differentials to be allowed was reached certain companies would allow cash discounts, sell coupon books at a discount, or sell at a greater differential than that agreed upon. On September 13, 1915, the secretary of the

association wrote the following to the San Bernardino Valley Oil Co., which indicates the attitude of the association toward discounted coupon books:

Regarding discounted books, there were a few books sold at a discount several months ago, but in view of this being considered price-cutting and contrary to the policy of this organization, this has long since been discontinued.

Defining price territorial boundaries was a step in equalizing prices which accompanied the harmonizing of marketing policies (see p. 111). The same type of customer in different territories had to be charged prices in relation to freight rates or other transportation costs. The problem was to make the territorial prices the same for all the members of the association. The solution was not very difficult for the Independent Petroleum Marketers Association, because most of the activities of the small companies were limited to the Los Angeles territory.

PRICE UNDERSTANDING OF SEPTEMBER 22, 1915.—At an informal meeting of the association held September 22, 1915, "the well-founded rumor of the advance in the market was discussed, and in view of such advance it was deemed an opportune time to adjust all differentials to precisely the same basis throughout your list of customers." It was also the sense of the meeting that "all market changes" should "take place simultaneously." (See Exhibit 21, p. 218.) Although not a member of the association, on the following day, September 23, J. L. Quinn, the Los Angeles district sales manager of the Standard Oil Co., reported the substance of this meeting to H. T. Harper, the company's general sales manager. On September 28, 1915, the Standard Oil Co. announced an advance in the price of gasoline of 1 cent per gallon in all of the principal markets of the Pacific coast territory. On September 23, 1915, J. L. Quinn wrote H. T. Harper as follows regarding the attitude of the association members toward this price advance:

Upon the advance in prices today of our Naphtha Products we find that all companies have followed our price signs and several of the members of the Independent Petroleum Marketers Association have telephoned me this morning to voice their approval of this advance and indicate to me that they were going to show our company now that they intend to be fair competition [competitors].

In an article dated September 25, 1915, which appeared in the Oil and Gas Journal of September 30, 1915, C. H. Gilman, California correspondent of that publication, made the following statement in regard to this same price advance:

Gasoline prices in Los Angeles have been generally adopted to conform to the recent schedule established by the Standard Oil Co.—12 cents per gallon. There is said to exist perfect harmony between that company and the Independent Marketers Association and no disposition to cut or retain the old prices.

C. H. Gilman is vice president and director of the Hurley-Smith Co., of Los Angeles, which had been a member of the association since February, 1915. In an article dated October 24, 1915, C. H. Gilman stated:

It is reported by the Independent Marketers Association that the business has resolved itself into a general understanding between themselves and the Standard and Union, and so far as known, one firm, the American Oil Co., with a very few stations, is the only company showing any disposition to cut rates.

At the time the above article was written gasoline had been advanced an additional cent per gallon, there having been a simultaneous increase of this amount by all the marketing companies at the principal cities on the Pacific coast on October 5, 1915.

From September 22, 1915, to April 6, 1916, the retail price of gasoline had been advanced eight times, and the association followed these price advances as near as it was able to keep its members in line. In his monthly sales report for September, 1916, J. L. Quinn, the Los Angeles district sales manager of the Standard, reported as follows on the condition of the company's business for the month:

Prices have been extremely chaotic, but there is a movement on foot among the Independent Petroleum Marketers Association to stabilize their prices in harmony with Standard Oil Company prices, which if accomplished will enable us to secure a large volume of business which heretofore went to competitors.

PRICE UNDERSTANDING OF SEPTEMBER 21, 1916.—Prices had been advanced so rapidly that some of the small companies could not resist the temptation to increase their gallonage by selling at less than the prices of the Standard Oil Co. This situation brought the Union Oil Co. into the Independent Petroleum Marketers' Association to help stabilize prices. C. W. Ralph, manager of stations of the Union Oil Co., wrote, under date of September 19, 1916, the following memorandum regarding the Independent Petroleum Marketers' Association, to W. L. Standard, of the same company:

Please do everything possible to interest the official of the above Association in bringing in and lining up the price cutters who are members of the Association. History will certainly repeat itself if some of these members continue to sell gasoline at 3¢ off, and as good business men they should certainly realize and appreciate the low markets we had to contend with a year ago, and a disposition on the part of our competitors to be fair and to maintain prices should certainly have its effect on the officials of the S. O. Co.[4] Surely we should all be willing to accept less gallonage at a fair price than to increase our sales at a much lower price.

The disastrous times which the Eastern jobbers passed through a year ago (and which has been clearly set forth in the National Petroleum News) was chargeable from the Gov't investigation to the slashing of prices on the part of the smaller independents. The S. O. Co.[5] finally retaliated by reducing the markets to below cost.

There is no justification on the part of local concerns to continue this slashing of gasoline prices, and there will be but one result, and that is a lowering of the market, so with this in view we should do everything possible to line up these cutters.

Will you kindly make it a point to let us have a report following each meeting you attend.

There was a meeting of the association on September 20, 1916, at which price cutting was discussed but no agreement was reached, but on September 21, 1916, according to memorandum of the secretary, an informal meeting was held "at which the consensus of opinion favored the following business policies":

NO. 1 ENGINE DISTILLATE TO RETAIL TRADE.

The wholesale price of engine distillate accorded only to bona fide re-sellers of same will be from this date, no less than 8¼¢ per gal. delivered, or 1¢ below the retail market.

[4] Standard Oil Co. (California).
[5] Standard Oil Co. (Indiana).

GASOLINE TO RETAIL TRADE.

All new business will be quoted and sold on a 2¢ differential which at the present retail market 19¢ makes the wholesale price 17¢.

All old business conflicting with this price, with the exception of such as is controlled by existing contracts extending beyond Oct. 1st, 1916, will be notified immediately that on and after Oct. 1, the wholesale price will be as above noted.

The Secy of the Assn will be supplied with the names of these customers now holding such contracts and the dates same will expire. This information to be confidential and only for use of the Secy in explaining any misunderstanding that might arise. At the expiration of said contracts all prices to be as hereinbefore stipulated.

PASADENA AVENUE SITUATION.

The Union Oil Co. and Wilshire Oil Co. with the cooperation of other marketers, on Sept. 22nd will clear up and stabilize conditions now threatening disruption of retail market on Pasadena Ave.

OTHER RETAIL TRADE.

All marketers will immediately furnish the Secy of the Assn. with the names of all retailers they now supply who are advertising and selling gasoline at less than the retail market. Also any others they may have in mind.

The above prices were identical with those of the Standard Oil Co., except for engine distillate, in which case the Standard's differential was one-half cent per gallon instead of 1 cent. A report of the above meeting, September 21, 1916, made by W. L. Standard, of the Union Oil Co., to C. W. Ralph, manager of stations of that company, states:

It was then finally agreed that all members of the Independent Petroleum Marketers Association would leave the equipment deal to be handled entirely by the Standard Oil Co. and ourselves.

The report of J. L. Quinn, district sales manager of the Standard Oil Co., for October, 1916, shows that the association members were stabilizing their prices in the garage and filling station trade, but that there was considerable competition for the commercial car trade, as shown by the following excerpt:

Made a slight gain during the month due to the majority of the members of the Independent Petroleum Marketers Association stabilizing their prices in the garage and filling station trade. There is a large gallonage going to competitors at 2¢ off the prevailing list price to the commercial car trade. However, the market looks to be more stable than it has been for some time.

The Standard Oil Co. allowed a differential of only 1 cent per gallon to the commercial car trade.

A memorandum of a meeting held October 4, 1916, stated that "All 16-cent price quotations vanished on October 1, excepting the bona-fide contracts." (See Exhibit 22, p. 219.) During the latter part of September lists of all resellers in Los Angeles and vicinity who were selling "under the market price of 19 cents" were sent in to the secretary of the association, and an association memorandum of a meeting held October 25, 1916, states:

In checking over the list of 18¢ signs we find that practically half of the 69, 18¢ signs have been eliminated since the 1st of October. This shows a very decided improvement in the general marketing conditions.

On December 2, 1916, the retail price of gasoline in Los Angeles was advanced to $0.20 per gallon. There was no further increase

until August 9, 1918, which was authorized by the United States Fuel Administration on account of an advance in freight rates.

PROPOSED AGREEMENT OF JANUARY 5, 1917.—Apparently there was price cutting following this advance to $0.20 per gallon on December 2, 1916, for a memorandum of a meeting held January 3, 1917, states:

> There was very little happened at the meeting until Mr. Jordan of the Jordan Oil Co. exploded his bomb shell. Mr. Jordan stated that when he came into the Association, it was with the understanding that the cut price condition was going to be cleaned up and that he had cleaned his up and as a result had lost ten out of fourteen customers. Mr. Jordan stated that it was all very nice to get together and talk over the situation, but that so far as he could see it was a chair warming proposition and that very little good resulted from it, also that unless there was some definite action taken on the price cutting proposition and that the Association get together and pull together that he was through with it for all time and that it was his intention to market his gasoline at the best figure he could secure disregarding any other condition.
>
> Mr. Jordan gave the Association until the next meeting which will be Wednesday Jan. 10th to clear up the cut price situation.

A memorandum from the association files dated January 5, 1917, which was sent to 13 association members, stated that (see Exhibit 23, p. 220):

> Gasoline marketers from Jan. 15, 1917, will refuse to sell any customer who will not display the retail market price sign.
>
> Will furnish no peddler who will resell at a greater differential than 2¢ or who permits the retailer to display signs under the retail prices.
>
> As contracts expire they will not be renewed except at 2¢ below the current market price at time of delivery.
>
> Any retailer who elects to haul his own or associates gasoline will be charged the regular 2¢ differential at refiners tanks.

H. H. Maxson, secretary of the association, informed the Commission at a hearing held October 7, 1921, that the above memorandum was sent out on his own initiative, "with the idea of stabilizing conditions to some extent" but without any obligation on the part of the members to execute the same. However, neither the directors nor members of the association criticized the secretary for having sent out this memorandum (see p. 186).

AGREEMENT OF JANUARY 10, 1917.—As shown in Exhibits 24 and 25, at a meeting of the association on January 10, 1917, it was agreed that none of the members would sell to the Five Mile House on El Monte Road unless a 20-cent sign was displayed. On January 12, 1917, a formal black list, effective for 60 days, and including among others the Five Mile House, was issued by the association; and within less than a week the Five Mile House displayed a 20-cent sign. A memorandum of a meeting held January 17, 1917 (see Exhibit 26, p. 222), states:

> As long as the El Monte Road Five Mile House is now displaying a 20¢ sign, the Wilshire, Standard Oil Co. and Union will start in to clean up the 20¢ signs at Alhambra, South Pasadena and Pasadena. This situation ought to be cleaned up very nicely within the next few days.

In a statement submitted to the Commission the Standard Oil Co. states (see p. 177):

> The company denies that it was in any way concerned in any agreement with reference to prices in the sections above mentioned.

But the alleged intention on the part of the companies mentioned to "clean up the 20-cent signs," did not refer to an agreement on prices;

it referred instead to cooperation in bringing pressure on retail price cutters, as in the case of the El Monte Road Five Mile House.

The Jordan Oil Co. remained a member of the association until August, 1917, when, again becoming dissatisfied, it withdrew its membership. In describing Mr. Jordan's withdrawal W. L. Standard, in a memorandum dated August 22, 1917, stated:

Mr. Jordan is very friendly but states that in his opinion the Association has failed in its endeavor to accomplish a better marketing condition in the City of Los Angeles. While Mr. Jordan admits that the Association has been of wonderful benefit up until a month ago, he feels that it is necessary for him to meet competition, and doing such he cannot be a member of the Association.

Evidently some of the small refiners in the vicinity of Los Angeles were willing to sell their gasoline at less than the market price during the greater part of 1917, as the association was unable to induce all of its members to maintain the open market price. (See Exhibits 27 to 32.) Much of the difficulty in maintaining prices at this time, as shown by the memoranda referred to above, was due to the growth of the use of the coupon system of selling gasoline at a reduced price. (See Exhibit 29.) The coupon system was used especially by the larger companies (see p. 54); therefore the small companies that did not want to adopt it were forced to openly cut the price agreed upon to meet competition, as shown by the extract from the annual report of the secretary for the year 1917:

The unfortunate condition of the gasoline market due to the growth of the coupon system, has made it especially difficult to hold the organization together during the past year. The smaller companies, not wishing to install coupon systems to meet this method of competition have in many instances encouraged the display of cut price signs with the usual resulting unstable condition of the market. Though this office has redeemed over 18,000 in Association coupons an increase of $6,010.00 over the previous year, only three members have availed themselves of the use of this privilege which would save the considerable expense and annoyance not experienced in the use of individual coupons, which in most cases are good only at their own stations.

CONTROL OF FUEL ADMINISTRATION.—After the 1st of May, 1918, the petroleum war service committee of the United States Fuel Administration stabilized prices of both crude petroleum and refined products. On August 7, 1918, J. L. Quinn, district sales manager of the Standard Oil Co., wrote a letter to W. S. Miller, one of the company's directors, in which he stated:

The Independent Petroleum Marketers Association at their meeting today discussed the possibility of clearing up the Los Angeles situation by wiring Mr. Requa if he would not issue orders regulating the marketing companies in Los Angeles on the basis of selling gasoline at 2¢ off, and 1¢ off on distillate, to retailers less 2% for cash and list to all other classes of trade less 2% for cash. The discussion before this meeting was based on an article appearing in the National Petroleum News of July 31, 1918, page 19, known as the Shreveport Report, as well as their knowledge that Mr. Requa was considering the Los Angeles condition at this time.

The Shreveport ruling of the oil division of the United States Fuel Administration referred to was as follows:[8]

Pending the issuance of a general order you are directed as follows: Make no allowance to retailers on gasoline or kerosene exceeding one cent per gallon. Make no drayage allowance to consignors on drum or fuel shipments. No permanent equipment shall be given or loaned, and sale or rental must be on a fair

[8] National Petroleum News, July 31, 1918, p. 19.

value. Give no premiums, secret fees or rebates. Coupon books (if sold) not more than 2 per cent discount for cash. Neither buy nor rent premises nor equipment from existing retailers. Furnish retailers no employees. Pay retailers no salaries or commission.

On August 15, 1918, W. S. Miller replied to J. L. Quinn's letter of August 7, in which he said:

The Los Angeles refineries have been clamoring for a higher price on gasoline. The Independent Petroleum Marketers Association could without doubt clear up the situation and if it were called to Mr. Requa's attention he would probably issue an order clearing it up. Some of our people here have felt that under the circumstances our company ought to take notice of this Los Angeles situation and meet all competition. Do you think the Independent Petroleum Marketers Association would be pleased to have the Standard Oil Company do this? Of course, this would be something that we would not wish to do, still such action might have to be taken.

I do not think it would be advisable to take this up with the Association, but if you should happen to meet one of them you might talk to him about it.

In a statement submitted to the Commission the Standard Oil Co. stated that at that time the Standard was under the control of the United States Fuel Administration and that it made no changes in prices unless "directed and authorized by the Fuel Administration," and that (see p. 177):

Mr. Miller's suggestion to Mr. Quinn therefore was prompted solely by the fact that if the prices at which the company was selling its product, which had the approval of the Fuel Administration and which the company could not change without the approval of the Fuel Administration, were prices not to be accepted by the company's competitors, then the company was warranted in seeking the Fuel Administration and requesting authority to lower its prices in order to meet competition.

AGREEMENTS IN MAY, 1919.—In the Spring of 1919 there were renewed signs of an effort to get the prices of all members of the association equalized to the Standard Oil Co. prices in preparation for a general market advance. The prices charged by the different companies were probably a little out of line here and there. In order to obtain uniform prices the Independent Petroleum Marketers' Association issued a price list effective May 5, 1919, covering gasoline, engine distillate, and kerosene, which named a price for each class of customers. On May 8, 1919, a "confidential" memorandum was sent out by the association which contained a list of "bona fide gasoline peddlers," and which was also to apply to the Standard Oil Co. stations, as shown by the following paragraph:

Beginning immediately all customers, unless in possession of a reseller's license, buying at commercial stations including Union Oil and Standard Oil Stations, will be charged the minimum prices of 19½ cents net per gallon for gasoline and 13 cents net per gallon for Engine Distillate.

There were memoranda issued at this time which named prices, classified customers, and gave a list of 20 peddlers and stated that "no new peddlers will be recognized." (See Exhibits 33 to 35.)

On May 8, 1919, J. L. Quinn wrote H. D. Collier, sales manager of the refined oils and naphtha division of the Standard Oil Co., summarizing the agreement quoted above, figures and all, in a manner so detailed and exact as to show that he must have had a copy of the agreement. In referring to peddlers, Mr. Quinn wrote (see Exhibit 35, p. 229):

The price to peddlers in their own tank wagons at refining tanks is 17½¢ per gallon for gasoline, and the list for peddlers was closed yesterday at noon so that no new peddlers would be created.

In a statement submitted by the Standard Oil Co., the following explanation is made of its relation to this agreement (see p. 178):

The information in this particular case came to the company unsolicited and was passed along to the general office as a matter of information only. It in no way affected the company's prices or its policies and the company's prices continued to be the El Segundo refinery base prices.

An advance in the price of the lighter grades of crude petroleum was made on June 10, 1919, and on the same day the price of gasoline was advanced 1 cent per gallon throughout the Pacific coast territory; this made the price $0.215 per gallon in Los Angeles. A shortage of gasoline developed in the Pacific coast territory in the latter part of 1919, and there was no difficulty in maintaining prices.

PRICE ADVANCES IN 1920.—The gasoline shortage which began in the fall of 1919 continued throughout the first three quarters of 1920. During this time there were continued efforts on the part of the Independent refiners to obtain advances in the price of gasoline. On February 26, 1920, F. C. Van Deinse, vice president and general manager of the Ventura Refining Co., wrote A. E. Boynton, secretary of the Oak Ridge Oil Co., as follows:

While an advance in the price of refined products has been agitated by several of the independent refiners, they have as yet been unable to agree upon a new schedule, and there appears to be considerable doubt as to whether the Standard Oil Company would be willing to join in any advance at this time.

The next gasoline price advance was made by the Standard Oil Co. on March 17, 1920, when the Los Angeles price was increased from $0.215 to $0.235 per gallon. This advance was simultaneously made by the members of the association, and it was comparatively easy to maintain the new price on account of the actual shortage of gasoline in the summer of 1920. Some of the small refiners claimed that this advance was not commensurate with the advances in the price of the lighter grades of crude petroleum which had occurred since the beginning of the year. The following extract from a letter written by H. S. Botsford, manager of the Puente Oil Co., to C. H. Schlacks, president of Union Oil Co. (Delaware), under date of March 31, 1920, shows the attitude of the small refiners at this time:

The close of the first quarter finds us with a shortage of all refined stocks and with no crude stocks in store at the old price. With the two advances in crude since February first, a total of 70¢ per barrel on our 30 gravity production, we have had, as you know, only two cents advance in the price of gasoline. Consequently our operations from this on will probably show no profit, if indeed not an actual loss."

Other small refiners complained that the prices of the lighter grades of crude petroleum had been advanced to such a point that there was no profit in refining operations.

The Standard Oil Co., however, was generally condemned by the consumer for making this advance in the price of gasoline on March 17, 1920, as well as for initiating price advances in the past. For these reasons, apparently, when the next advance in price occurred, the Standard Oil Co. did not take the lead. The Union Oil Co. announced on July 28, 1920, an increase from $0.235 to $0.25 per gallon and on August 4, 1920, another increase from $0.25 to $0.27 per gallon

in Los Angeles. The Standard Oil Co. followed these advances on August 6, by increasing its prices from $0.235 to $0.27 per gallon. This was the first time during the period 1914–1920 that the prices of all the large marketers were not changed simultaneously in the Los Angeles market. The Oil and Gas Journal commented on this price advance in its issue of August 13, 1920, page 44, as follows:

Effective August 4, the Union Oil Co. of California advanced the price of gasoline from 25 to 27 cents a gallon with the published announcement that the importing of additional supplies from the Eastern fields make it absolutely essential to increase the price. Following this lead, all members of the Independent Marketers Association at a meeting held Wednesday, decided to raise the price to the same standard. The Standard Oil Co. today (August 6) met the price of 27 cents in Los Angeles and San Francisco.

Every previous advance during the past has been established by the Standard, which, as a natural result, has stood the brunt of criticism on the part of the press and the public.

The following letter dated August 10, 1920, from C. S. Beesemyer, of the Gilmore Petroleum Co., to E. B. Gilmore, the president of the company, substantiates the Oil and Gas Journal report:

As you probably already know the Standard Oil Company boosted their price on Gasoline to twenty-seven cents following the Union's advance and all Independents have advanced likewise with the exception of the Wilshire Oil Company and they boosted their price to thirty-two cents.

A synopsis of the price situation is contained in the following letter dated August 9, 1920, from John Otis Haley, of the Pacific American Petroleum Co., to H. H. Maxson, secretary of the Independent Petroleum Marketers' Association:

The writer has been advised that the Purity Station which is at the corner of Ninth and Santa Fe Avenue of this city, is selling their high grade product at 26½¢ per gallon retail and maintains signs to this effect.

If this is the case you no doubt are aware of the fact that this price is ½¢ under the standard retail market price. It was just this sort of irritation that caused the Standard Oil Company considerable anxiety some two years ago when the Western Refinery retailed their Crystal Gasoline anywhere from 18½¢ to 19½¢ per gallon when the regular standard market price was 20½¢ per gallon or thereabouts, also other companies were selling it for less than the standard price.

At a later date some bright minded person conceived the idea that by charging the regular standard market price for their gasoline that it meant harmony amongst the oil family and also at the end of the month more money was accumulated on the right side.

This is only notice to the public that the recent raised price for gasoline by the Standard Oil Company to 27¢ is more than it should be because they (The Western Refinery) are in a position to deliver City Specification Gasoline for 26½¢ per gallon, therefore why should the Standard Oil Company charge 27¢ per gallon, and on the other hand the Wilshire Oil Company as I noticed this morning, at their stations are asking 32¢ per gallon for gas. This is a credit for the Wilshire Oil Company, but it is anything but a credit to the Western Refinery for asking less than the standard market price for their gasoline providing this is the case.

It is the writer's opinion that the market price on gasoline should be 30¢ per gallon to be in harmony with other prevailing prices; this could be accomplished very easily if the independent refiners would take the initiative as the Wilshire Oil Company has, but if the Purity Station or other stations would advertise gasoline at 26½¢ per gallon this end would be difficult to accomplish.

We are always willing to raise our prices as high as the next independent refiner, also are willing at all times to donate for good cause to help out such conditions.

Trusting that you will take this matter up with the Western Refinery as you know the personals, and that they will understand the matter in the right spirit.

It is the writer's intention to do everything possible to keep prices at least up to the standard.

Kindly treat this matter singly and do not mention the fact to other companies.

There has always been considerable complaint about price cutting under the Standard Oil Co. prices in Los Angeles and vicinity by members of the association who checked up on each others' activities. On the whole, however, the association members have lived up to the Standard Oil Co. price rather closely. The Los Angeles market was so important that the large marketers were not willing to abandon it to the small independents, and they were unable to advance prices unless uniform prices were being charged, without losing gallonage.

AGREEMENTS ON CITY BIDS.—Memoranda of association meetings show that the association members reached an agreement among themselves as to what bids would be made in supposedly competitive sales. A memorandum of a meeting held December 20, 1916, states:

The question of the Los Angeles City specifications came up for discussion. It was agreed that only four Refiners were going to bid on the contract covering the City Requirements for 1917, the S. O. Co., the U. O. Co., California Oil and Asphalt and the Western Oil Co. It was agreed that all should bid 1¢ off open tank wagon market price at time and place of delivery.

The above refers to bids that were to be made on specification 155, for the city of Los Angeles. Bids were received December 22, 1916, from three companies, as follows (see Exhibit 36, p. 230):

The Union Oil Company quoted on gasoline, in tank wagon delivery or drums, 19¢ per gallon, which was 1¢ less than the retail market price. The Standard Oil Company and Western Oil Company quoted 1¢ less than retail market price, not specifying any amount. The city Attorney ruled that bid of this kind was not legal and all bids were rejected by the City Council at its meeting of January 17, 1917.

On the same day, January 17, 1917, the following action was taken at a meeting of the association, as shown by the following excerpt from a memorandum of that meeting:

The question of the new bids for the City of Los Angeles was taken up for discussion. The new request calls for a flat price on all refined oils for a period of six months. All parties who will bid on these new requirements will bid the same as last time namely 1¢ off the open tank wagon market price at time and place of delivery.

According to information furnished by the city purchasing agent (see Exhibit 36, p. 230):

The same firms quoted in the same manner and bids were again rejected and the Purchasing Agent instructed to issue regular purchase orders for supply at the best price obtainable.

Gasoline was purchased at 19¢ per gallon during the months of January, February, March, April and May, and at 18¢ per gallon during the remainder of the year.

Both of the memoranda of meetings of the association named the Standard Oil Co. as one of the companies that would bid on these requirements and the price that they would bid. On December 20, 1916, the day of the first association meeting, J. L. Quinn, Los Angeles sales manager of the Standard Oil Co., wired the home office as follows:

The city's yearly requirements as follows: 200,000 gallons gasoline; 25,000 gallons distillate; 5,000 gallons coal oil. Would recommend bidding 1 cent off the prevailing market price at date of delivery on all three products. Will you kindly get this bid in tonight's mail.

J. L. Quinn was instructed by wire to submit bids on basis of 1 cent off the market price. (See Exhibit 2, p. 176.)

AGREEMENTS COVERING FUEL OIL, GAS OIL, AND DISTILLATE.—The chief activities of the Independent Petroleum Marketers' Association were devoted to the maintenance of uniform gasoline and engine distillate prices. Efforts were also made to maintain the Standard Oil Co.'s market price on all other petroleum products. The association attempted to harmonize marketing conditions in the sale of fuel oil and to this end organized a fuel oil section of the association, but as little was accomplished apparently it was disbanded in March, 1918.

Evidence of an agreement among members of the Independent Petroleum Marketers' Association to fix the price of gas oil is contained in the following extract from a confidential memorandum, dated January 23, 1919. (See Exhibit 37, p. 231.)

Discussed Gas Oil situation with a number of interested parties, those present were the G. P. Co. Puente Oil Co., Wilshire Oil Co., Richfield Oil Co., Ventura Refining Co., and California Oil and Asphalt Company. Those absent were the Vernon Oil Refining Co. and the Golden State Refining Company. It was agreed that no price should be quoted either Tarr & McConib or Mr. Roseberg other than 6¼¢ tank cars f. o. b. Refinery on Gas Oil. This on account of the irresponsibility of the two parties in question as to the maintenance of prices. These two people have been canvassing the refiners to secure a contract on Gas Oil. The Vernon Oil Co. are members of our organization and we believe that they will agree to the above. This will be taken up with them through the Association. This will also be done in the case of the Golden State Refining Company and it may be that they will not fall into line. However, their production is so limited that they could be ignored if necessary.

It was further agreed that all interested would quote legitimate jobbers at 5¼¢ or 6¼¢ direct to the consumer. The question was discussed as to exactly what was meant by a jobber or reseller and each of the Oil Companies present agreed to make a list of their customers who were entitled to the 5¼¢ price. Such a list was prepared and we will receive copy within the next few days. It was impossible to reach an agreement that the one price of 6¼¢ should prevail to all purchasers. All cooperative Farm Associations are classed as resellers providing they do sell direct to their own members.

H. H. Maxson, secretary of the association, informed the Commission at a hearing held October 7, 1921, that stove and furnace distillate price lists of the Diamond Oil Co. were distributed by the association "as a guide for others in the same line of business, or for their information"; and that the price list of the Diamond Oil Co. was distributed because the Standard Oil Co. does not sell these two commodities in the Los Angeles territory. (See p. 192.) The price list of January 15, 1917, named a price of $0.045 per gallon for bulk deliveries for stove distillate and $0.0375 for furnace distillate. (See Exhibit 38.) Other association price lists showing advances in price were issued September 1 and December 1, 1917, May 6 and October 14, 1918, and February 20, 1920. This last price list, shown in Exhibit 38, shows that stove distillate in bulk deliveries was $0.085 and furnace distillate $0.075 per gallon.

Section 6. Relations between large marketing companies and the Association.

RELATIONS BETWEEN STANDARD AND ASSOCIATION.—As already stated, there was keen competition among the California marketing companies, particularly in the sale of gasoline and engine distillate, from 1913 to the latter part of 1915. By the fall of 1915 it was alleged that the Standard Oil Co. was endeavoring to cut prices

to a point that would eliminate the smaller refiners from the marketing business. The president of a company which was a member of the Independent Petroleum Marketers' Association, wrote on September 17, 1915, to one of his stockholders as follows:

> It seems to be the purpose of the Standard Oil Co. to ruin all the independent concerns on this coast and, so far as our companies are concerned, have succeeded in making it very difficult for us to exist.

At a meeting of the association held on September 22, 1915, "the well-founded rumor of the advance in the market was discussed, and in view of such advance it was deemed an opportune time to adjust all differentials to precisely the same basis throughout your list of customers." It was the sense of this meeting that "all market changes" should "take place simultaneously." The following day, September 23, 1915, the Standard Oil Co. advanced the price of gasoline. The Standard was fully advised by J. L. Quinn, its Los Angeles sales manager, of the action taken by the association members on September 22. J. L. Quinn was also familiar with the discussion that took place at this meeting, as is shown by the following excerpt from a letter written to H. T. Harper September 23, 1915:

> I understand after a great deal of discussion the three first paragraphs were agreed upon as a basis to work out from under the chaotic condition and eliminate as far as the members of this organization were concerned the evils that have caused disconstructive [destructive] competition which has existed here for the past three or four years.

The attitude of the members of the association toward the Standard is indicated by the following paragraph from J. L. Quinn's letter of September 23, 1915:

> Upon the advance in prices today of our Naptha Products we find that all companies have followed our price signs and several of the members of the Independent Petroleum Marketers Association have telephoned me this morning to voice their approval of this advance and indicate to me that they were going to show our company now that they intended to be fair competition [competitors].

The Los Angeles district sales manager[1] of the Standard Oil Co. kept in close touch with the association and he also kept the home office well informed of the association price activities and of the competitive conditions in that territory. J. L. Quinn informed an examiner of the Commission that he secured his information regarding the activities of the association from E. H. Miller, of the Diamond Oil Co., a member of the association, and during the earlier years from a Mr. Sheather, now deceased, of the California Oil & Asphalt Co. This latter company was also a member of the association (see p. 107). As already noted, J. L. Quinn promptly forwarded memoranda of the important activities of the association to the general sales manager at San Francisco.

The evidence indicates that the Standard Oil Co., or at least its Los Angeles sales manager, and the association members were in complete agreement regarding the price to be bid on the 1917 Los Angeles city requirements for petroleum products, and as a result the city of Los Angeles was unable to secure competitive bids for these requirements (see p. 121). The city asked for bids on December 22, 1916, and again on January 24, 1917, and on both occasions an agreement was reached by members of the association on the

[1] J. L. Quinn held this position from some time in 1913 to May, 1919.

prices to be named, and in both cases they apparently knew the prices which the Los Angeles district sales manager of the Standard Oil Co. intended to bid, as the memoranda of the association meetings of December 20, 1916, and January 17, 1917, named the companies, including the Standard, which were to bid, and also named the prices which they did bid. Furthermore, on the day of the first agreement, December 20, 1916, J. L. Quinn, Los Angeles district sales manager, wired the home office, at San Francisco, recommending the prices which were the same as those agreed upon by members of the association, and on the same day, December 20, 1916, the home office of the Standard wired J. L. Quinn to bid the prices which he had recommended (see p. 176).

At a meeting of the members of the Independent Petroleum Marketers' Association held on January 10, 1917, it was agreed that none of the members would sell to the Five Mile House on El Monte Road unless a 20-cent sign was displayed. On January 12, 1917, a formal black list, effective for 60 days, and including among others the Five Mile House, was issued by the association, and within less than a week the Five Mile House displayed a 20-cent sign. W. L. Standard, of the Union Oil Co., in reporting a meeting of the association held on January 17, 1917, said:

> As long as the El Monte Road Five Mile House is now displaying a 20¢ sign, the Wilshire, Standard Oil Co. and Union will start in to clean up the 20¢ signs at Alhambra, South Pasadena and Pasadena. This situation ought to be cleaned up very nicely within the next few days.

The Standard Oil Co. denied that there was any agreement on prices at these points (see p. 177), however, the above referred to cooperative efforts to eliminate price cutting on the part of retailers and not to price agreements.

In August, 1918, J. L. Quinn wrote to W. S. Miller, a director of the Standard Oil Co., in which he stated that the Independent Petroleum Marketers' Association had discussed the possibility of eliminating the price cutting by requesting M. L. Requa, director of the oil division of the United States Fuel Administration, to issue an order fixing the minimum retail prices, as was done at Shreveport, La. (see p. 117). Under date of August 15, 1918, W. S. Miller replied as follows:

> The Los Angeles refineries have been clamoring for a higher price on gasoline. The Independent Petroleum Marketers Association could without doubt clear up the situation and if it were called to Mr. Requa's attention he would probably issue an order clearing it up. Some of our people here have felt that under the circumstances our company ought to take notice of this Los Angeles situation and meet all competition. Do you think the Independent Petroleum Marketers Association would be pleased to have the Standard Oil Company do this. Of course this would be something that we would not wish to do, still such action might have to be taken.
>
> I do not think it would be advisable to take this up with the Association, but if you should happen to meet one of them you might talk to him about it.[9]

In a report to the home office dated April 19, 1919, J. L. Quinn, Los Angeles district sales manager of the Standard Oil Co., stated:

> There is a movement on foot at the present moment by the Independent Petroleum Marketers Association to reduce the differentials to service station and garage operators, for at the present time many are receiving 3½¢ to 3¢ below our open market price of 1¢ or 1½¢ larger differentials than our own.

[9] For the Standard's explanation, see p. 177.

In the early part of May, 1919, the association members again agreed to maintain the differentials between the wholesale and retail prices of 2 cents per gallon on gasoline and 1 cent per gallon on engine distillate, effective May 5, 1919, for sales to garages and service stations, and on May 8 a supplementary agreement was made covering the price to commercial users. The home office of the Standard Oil Co. was informed of the first agreement before it was to become effective. The first paragraph of the supplementary agreement of May 8 specifically mentioned the Standard Oil Co., as shown below:

Beginning immediately all customers, unless in possession of a resellers license, buying at commercial stations, including Union Oil and Standard Oil Stations, will be charged minimum prices of 19½¢ net per gallon for gasoline and 13 cents net per gallon for engine distillate.

This agreement gave the names of 20 concerns regarded as peddlers and stated that no new peddlers would be recognized (see p. 229). Under date of May 8, 1919, J. L. Quinn wrote to H. D. Collier, sales manager of the refined oils and naphtha division of the Standard Oil Co., giving a detailed and exact statement of the above agreement (see p. 229). A long-hand note attached to the agreements of May, 1919, in the handwriting of the secretary of the association contained the following:

Salesmen of commercial or industrial concerns 19½ (Bill to employer) wait on S. O.*
Newmark Bros. add to 18–½ list.
Newmark Bros. 18–½ S. O.*

In a statement filed with the Commission by the Standard Oil Co. the company offered the following explanation (see p. 178):

The information in this particular case come to the company unsolicited and was passed along to the General Office as a matter of information only. It in no way affected the company's prices or its policies.

The purpose of the above agreement was not to establish a new price but to discipline price cutters and eliminate price cutting.

On June 10, 1919, the price of gasoline and engine distillate were both advanced 1 cent per gallon by the marketing companies on the Pacific coast. In referring to this advance, C. H. Gilman, California correspondent of the Oil & Gas Journal, stated in an article dated June 14, 1919:

The maintenance of uniform prices throughout the larger cities of the state has been largely brought about through the cooperation of the Independent Marketers Association, which has worked in harmony with the Standard and Union, who are also a unit in the establishing of prices with the Shell Company and the Associated, and through this mutual agreement price cutting has been almost abolished.

C. H. Gilman was vice president of the Hurley-Smith Co. of Los Angeles, a member of the association.

The members of the association were frequently reported to have urged the Standard Oil Co. to advance gasoline prices in the spring of 1920, and prior to the summer of 1920 the Standard initiated the price changes while the other large marketing companies and members of the association followed its prices. From correspondence between H. S. Botsford, manager of the Puente Oil Co., and C. H.

* S. O. refers to the Standard Oil Co.

Schlacks, president of the Union Oil Co. (Delaware), which controls the Puente Oil Co. through stock ownership, it appears that the members of the association, early in April, 1920, were urging an advance in the prices of gasoline. According to the following translation of a code telegram, dated April 10, 1920, from H. S. Botsford to C. H. Schlacks, the Standard Oil Co. recommended that the Independents increase the price of gasoline:

> Had a talk Monday Standard Oil Co. (California). San Francisco as good as recommended Independents increase price gasoline. Friday local representative definitely asks if it is not possible Independents take some action. Can see no objection making price 25, now 23½.
> Please advise.

H. S. Botsford was president of the Independent Petroleum Marketers' Association at that time. There were no immediate results from these efforts to advance gasoline prices. In fact, C. H. Schlacks forbade the Puente Oil Co. taking any part in concerted price advances, and soon after H. S. Botsford resigned as president of the association (see p. 90). While the independent marketers did not advance the price at this time, when price advances were made in July and August, 1920, they were first made by the Union Oil Co. There was a shortage of gasoline in California at this time, and the Union Oil Co. advanced the price 1½ cents per gallon on July 28, 1920, and further advanced the price 2 cents per gallon on August 4, 1920. The association members met on the latter date and decided to increase their prices to the same level, and the Standard Oil Co. followed on August 6 with an advance of 3½ cents per gallon. This advance of the Standard made the prices of all marketers the same.

RELATIONS WITH OTHER LARGE MARKETING COMPANIES.—As already stated, the Independent Petroleum Marketers' Association was very active in attempting to secure the membership of the large independent marketing companies. The General Petroleum Co., the predecessor of the General Petroleum Corporation, became a member in April, 1916, and although its business was taken over by the latter company on July 1, 1916, the former company still retained membership in the association. The General Petroleum Corporation did not join. In September, 1916, the Union Oil Co. became a member, and the Associated Oil Co. joined the association in November, 1920. Neither the Shell nor the Standard ever became members of the association.

Chapter VIII.

GENERAL COMPETITIVE CONDITIONS IN CALIFORNIA AND IN THE UNITED STATES.

Section 1. Dominance of large companies in California.

The most significant economic fact developed by this inquiry is the degree of control of the five large companies in every branch of the petroleum industry of the Pacific coast. In 1918 they produced and purchased 80 per cent of the total crude-petroleum production of California, they operated practically all of the pipe lines, refined almost 92 per cent of the crude run by all refineries in that State, and marketed fully 90 per cent of all refined petroleum products sold in both the domestic and export markets of the Pacific coast territory.

The Standard Oil Co. is the most important factor in the Pacific coast petroleum industry. In 1919 it produced 25 per cent of the crude-petroleum production of California, it produced and purchased about 35 per cent, owned about 35 per cent of the pipe lines, refined almost 50 per cent of the crude run through California refineries, marketed 55 per cent of the gasoline, 38 per cent of the engine distillate, 70 per cent of the kerosene, 65 per cent of the lubricating oils, and about 35 per cent of the gas oil sold by all marketers in the domestic market of the Pacific coast. In the purchase of crude petroleum and the sale of refined petroleum products the Standard generally names the market price and other marketers follow these prices.

Section 2. Effect of restriction of competition on Pacific coast.

The resolution directing this inquiry requested information regarding the effect which any combinations "had upon the market price of fuel oil, gasoline, and other petroleum products, especially on the Pacific coast and especially with reference to the price charged to the ultimate consumer."

The Standard Oil Co., as already stated, began to sell directly to the consumer in the fall of 1914 and fixed its differential between the wholesale and retail price of gasoline at 2 cents per gallon. Prior to this there had been no generally established differential between the wholesale and retail price, but it had generally been higher.

The numerous small refiners in the vicinity of San Francisco and Los Angeles in 1914 and during most of 1915 found the competition very keen, particularly in the sale of gasoline. In addition to the competition of the small refiners, the Associated Oil Co. and the Shell Co. were just becoming factors in the gasoline market. By the end of 1915 the few small refining and marketing companies in the vicinity of San Francisco had been eliminated from the petroleum

business, as well as two in the vicinity of Los Angeles. The remaining small refining and marketing companies in the vicinity of Los Angeles, through the Independent Petroleum Marketers' Association, agreed to maintain the prices announced by the Standard Oil Co., which was the largest marketing company on the Pacific coast. The Union Oil Co., the second largest marketing company, was maintaining substantially the same prices. This apparently made it much easier for the Standard Oil Co., which had always been recognized as the leader in establishing prices throughout the Pacific coast territory, to initiate price advances. The first price advance, in 1915, was made the day following the understanding of the members of the Independent Petroleum Marketers' Association that they would maintain the prices announced by the Standard. Throughout the remainder of the period the prices of all petroleum products were materially advanced. Although at times there was considerable price cutting in the vicinity of Los Angeles by the small companies, and occasionally a special price was given to a large consumer in other parts of the Pacific coast territory by one of the large companies, as a rule the price advances announced by the Standard Oil Co. were maintained.

Section 3. General competitive conditions in the United States.

The Senate resolution under which this inquiry was made, while it required information particularly with respect to the petroleum industry in the Pacific coast region, also called for a consideration of the general conditions in the United States. Certain aspects of this part of the subject were covered in some detail in Part I of this report and also in another report recently issued,[1] but in this connection only certain outstanding facts regarding competitive conditions require consideration.

Section 4. Control by large companies in the United States.

IMPORTANCE OF LARGE INTERESTS.—The bulk of the crude petroleum production of the United States is controlled by a comparatively few companies and their subsidiaries. Although there are thousands of individual producers, 32 companies produced almost 60 per cent of the 1919 output. In that year there were over 370 refining companies operating in the United States, and 39 companies operated almost 80 per cent of the refining capacity and consumed 85 per cent of all the crude petroleum refined in the United States; while about 25 marketing companies sold the bulk of the petroleum products marketed in the United States.[2]

DUTCH-SHELL INTERESTS.—The Royal Dutch-Shell interests are the most important foreign factors in the domestic petroleum industry. The Shell Co. of California and the Roxana Petroleum Corporation are its most important companies. In 1919 these two companies produced a little over 2¼ per cent of the total quantity of crude petroleum produced and refined slightly more than 2 per cent of the quantity of crude consumed by all refiners in the United States. Up to the present time their retail marketing activities have been confined to the Pacific coast territory.

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[1] Advance in the Prices of Petroleum Products, June 1, 1920.

[2] If companies controlled by substantially the same interests, such as the Standard group of companies, are treated as a unit, the number of companies, as above mentioned, would be considerably reduced in each case.

STANDARD GROUP.—The members of the Standard Oil group are the dominating factors in the petroleum business of every section of the country. Standard companies are relatively weaker in production than in any other branch of the petroleum business, yet in 1919 companies that are now members of the Standard Oil group controlled 23½ per cent of the total production of the entire country. Standard refineries operating in 1919 consumed almost 44 per cent of the total quantity of crude petroleum refined in the United States, and owned about 68 per cent of the trunk-pipe lines, while Standard marketing companies are the dominating factors in the domestic and export trade of the country.

Section 5. Standard marketing territories.

The areas in which the various members of the Standard Oil group sell gasoline and kerosene to retailers by tank wagon, or at retail to consumers, are shown on the map opposite page 130. The map also shows the location of petroleum refineries owned or controlled by Standard companies. A more complete statement giving the names of the cities and towns in which the refineries are located is shown in Appendix Table 16. The boundaries of the different Standard companies follow State lines in most cases, and there have been but slight changes since the dissolution in 1911. As a rule, to-day, as before the dissolution, only one Standard marketing company operates in a given territory, as for example, the Standard Oil Co. (California) in the Pacific coast territory, the Continental Oil Co. in the Rocky Mountain region, or the Standard Oil Co. (Nebraska) within the State of Nebraska. In recent years, however, two or more Standard companies have sold in the same territory: For example, as shown on the map, the Magnolia Petroleum Co. has service stations in certain parts of New Mexico, which formerly was solely Continental Oil Co. territory, and it also sells in Arkansas, which is also a part of the territory of the Standard Oil Co. of Louisiana. The Standard Oil Co. (California) and the Continental Oil Co. have both sold gasoline in certain parts of western Idaho, and the Atlantic Refining Co. has extended its sales into Massachusetts, Rhode Island, and Connecticut, which formerly was solely the territory of the Standard Oil Co. of New York. On the other hand, through its control of the Humble Oil & Refining Co., the Standard Oil Co. (New Jersey) may be said to have extended its marketing territory into the southeastern part of Texas and southwestern Louisiana.

Section 6. Prices set by Standard.

In most of the Standard marketing areas east of the Rocky Mountains, as in California, Standard crude petroleum purchasing companies and Standard marketing companies usually take the lead in announcing price changes, while other companies usually follow. Occasionally some of the larger independent companies, such as the Texas Co. and the Gulf Co., take the initiative. However, officials of the above companies stated in May, 1920, that the prices announced by the Standard companies are generally regarded as the market price. As stated in a former report:[1]

> Price initiative today seems to be left generally to the Standard companies and competition is apparently more directed to developing facilities for getting business than to seeking to obtain it by underselling.

[1] Advance in the Price of Petroleum Products, p. 58.

Section 7. Recent acquisitions by large interests.

ROYAL DUTCH-UNION OIL MERGER.—The merger of the petroleum interests in the United States of the Royal Dutch-Shell combination of The Hague and London and of the Union Oil Co. (Delaware) has been announced recently. According to C. H. Schlacks, president of the Union, the plan of merger involves the formation of a new corporation having 10,000,000 shares of capital stock of no par value. In exchange for its properties the Union Oil Co. (Delaware) receives 2,240,000 shares in the new corporation, while the Anglo-Saxon Petroleum Co. (Ltd.), a Dutch-Shell subsidiary, secures 5,760,000 shares. This gives the Union Oil Co. 28 per cent and the Anglo-Saxon Petroleum Co. 72 per cent.[4]

The Royal Dutch-Shell subsidiaries in this country which are reported to be covered by the merger include the Shell Co. of California and subsidiaries, the Roxana Petroleum Corporation, the Ozark Pipe Line Co., and the Matador Oil Co. The Union Oil Co. (Delaware) is a holding company. The companies controlled by it which are included in the merger are the Western Union Oil Co., the United Western Consolidated Oil Co., the Dunlop Oil Co., the Eddistone Oil Corporation, the Columbia Oil Producing Co., the Puente Oil Co., the Central Petroleum Corporation, the Wolverine Oil Co., the Sagamore Oil & Gas Co., and the Wigwam Oil Co.

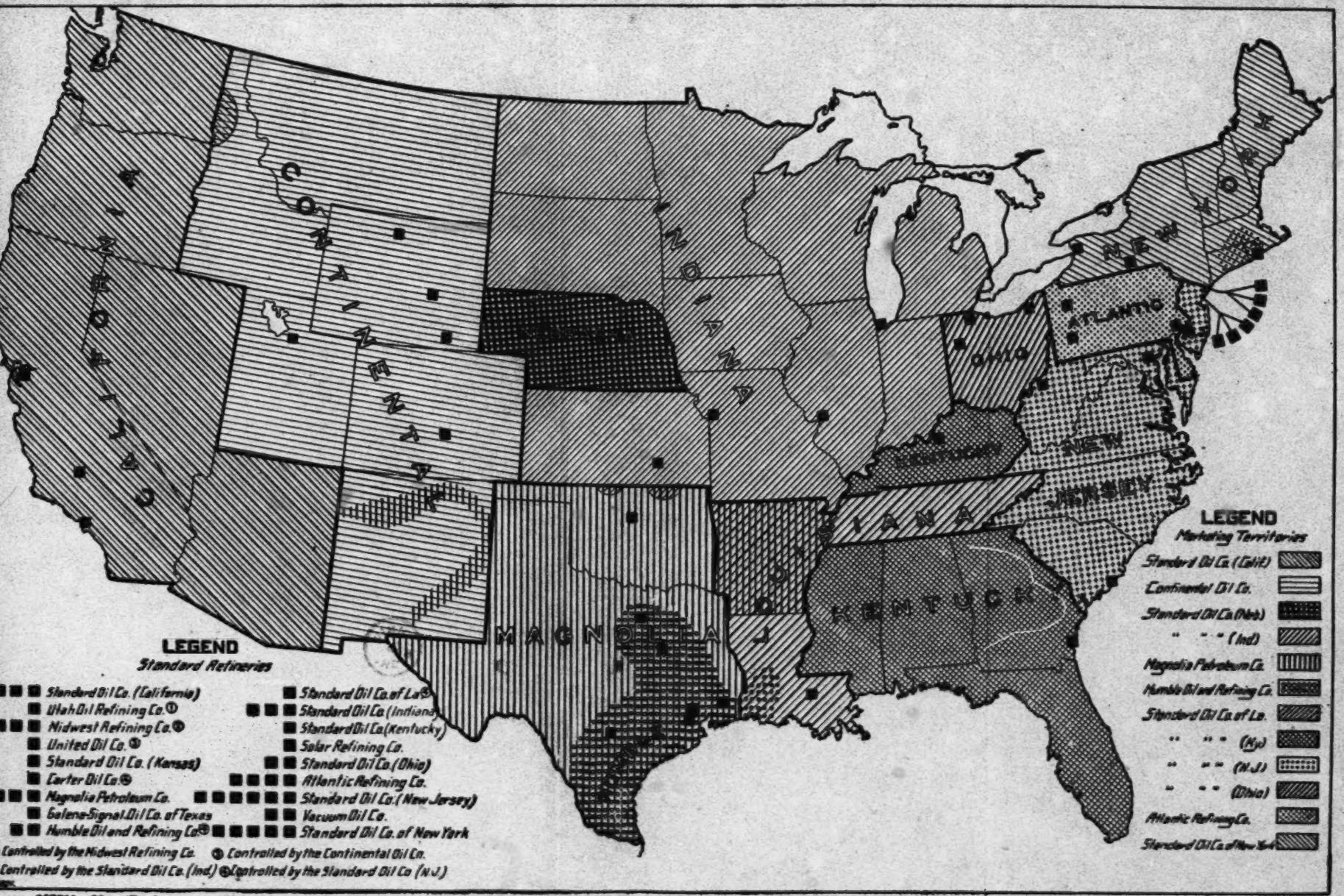
On December 31, 1920, the Union Oil Co. (Delaware) owned a little over 26 per cent of the stock of the Union Oil Co. of California. Some of the stockholders, particularly California stockholders of the latter company, are attempting to prevent the Royal Dutch-Shell interests from acquiring control. Under date of October 17, 1921, a plan for the formation of a Union Oil Co. of California Stockholding Co. was sent to Union of California stockholders. This proposed holding company is to be organized as soon as owners of 40 per cent of the stock of the Union Oil Co. of California agree to the formation of the proposed holding company. According to the circular letter of October 17, 1921, which was sent to the stockholders, the object of the attempted formation of the holding company is to unite the interests of the smaller stockholders, as shown by the following excerpt:

> The purpose and intent in the establishment of this Holding Company, is to enable a very large number of stockholders to unite their interests so that they may act as a unit. * * *
>
> You have doubtless been informed of the fact that about 27% of the stock of Union Oil Company of California has been acquired and is now held in one single corporate ownership foreign to California. One important factor in the present situation is the fact that no one knows from day to day who may turn up as the owner of this large concentrated block of stock. We do not know where he or they may live or what their purpose may be. Such a condition is intolerable. No management can properly function under such circumstances. It is demoralizing to the loyal army of employees as well as to the managing officers to be constantly watching the news items for information and listening to disturbing rumors. Why should we Californians, owners collectively of a majority interest, really remain in the minority?

The combined production of the companies which would be controlled by the merger (this does not include the Union Oil Co. of California) constituted about 3 per cent of the total production of

[4] The Commercial and Financial Chronicle, Nov. 5, 1921, pp. 1990–1991. On Feb. 8, 1922, the Shell-Union Oil Corporation was incorporated in Delaware to take over these properties.

GASOLINE MARKETING TERRITORIES AND REFINERIES OF THE STANDARD COMPANIES IN THE UNITED STATES



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FEDERAL TRADE COMMISSION PACIFIC COAST PETROLEUM INDUSTRY, PART II.

he United States in 1920. If control of the Union Oil Co. of California should be acquired by the new merger, its control of crude petroleum production in the United States would be increased to 5 per cent exclusive of that produced under contracts held by the Union of California.

The largest control of crude petroleum production of the Royal Dutch-Shell interests is in foreign countries, especially in the Dutch East Indies and Mexico. In 1920 these interests produced almost 0 per cent of the world's total production, and if the production of he United States is excluded they produced about 27 per cent of the emainder.

ACQUISITION OF STOCK OF THE PACIFIC OIL CO.—The Standard Oil o. recently entered the market and purchased, prior to November 5, 1921, somewhat less than 20 per cent of the shares of the Pacific il Co., which was organized in December, 1920, to take over the xtensive oil properties of the Southern Pacific Railway.

Upon information that the Standard Oil Co. (California) had equired or was acquiring an interest in the Pacific Oil Co., inquiry as made by the Commission of the Standard as to the truth of the eport, to which inquiry K. R. Kingsbury, president of that company, replied in part as follows:

> A material part of the production from the lands owned by Pacific Oil Company has for many years been delivered to our company under contract for e in our refineries. With the knowledge that the control of Pacific Oil ompany was sought by foreign interests, which if effected would have undoubtedly resulted in the loss of this oil to us, we deemed it important to rther the maintenance of an American ownership of this company. We also ew that these same foreign interests, which operate in California, were also egotiating for an interest in an important California oil company with which ey are in competition. These negotiations have since been consummated. In view of this situation, the Standard Oil Company (California) entered on the acquisition of a minority interest of Pacific Oil Company stock and w owns less than twenty per cent of that stock. No purchases of the stock ve been made by us for some months past.

Mr. Kingsbury's statement that "control of the Pacific Oil Co. as sought by foreign interests" referred to the Royal Dutch-Shell roup.

Inquiry was made of the Royal Dutch-Shell group by the Commission whether it had acquired or was acquiring any interest in the acific Oil Co., to which Gen. Avery D. Andrews, representative of e Royal Dutch-Shell group, replied as follows:

> Replying to your telegram November twenty-first received twenty-second I n now authorised to state that the Dutch-Shell interests by which I mean oyal Dutch Petroleum Company of Holland and Shell Transport and Trading ompany of London and their subsidiary companies do not own and are not w acquiring Pacific Oil Company stock.

The acquisition by the Standard of an interest of less than 20 per nt in the Pacific Oil Co. is significant with respect to the control of e Pacific coast petroleum industry and competitive conditions erein. The production of crude petroleum from the properties now wned by the Pacific Oil Co. was 9,474,270 barrels in 1919, or 9.3 r cent of the total production of California. The Pacific Oil Co. wns, also, slightly more than 50 per cent of the Associated Oil Co. his latter company ranks third in importance in the refining and arketing business of the Pacific coast. The combined production

of the Associated-Pacific Oil Co. interests in 1919 was 18,444,000 barrels of crude petroleum, or 18.2 per cent of that of California. During the same year, 1919, the Standard Oil Co. produced 25,484,984 barrels, or about 25.2 per cent of the total. Hence in 1919 these interests combined produced over 43 per cent of the total crude petroleum output of California.

Mr. Kingsbury recently predicted that the production of the Standard Oil Co. (California) in 1921 would be 41,000,000 barrels.[a] The combined production of the Standard, Pacific, and Associated companies, it is estimated by the Commission, would be almost 60,000,000 barrels in 1921, or more than 50 per cent of the entire crude petroleum of California.

OTHER RECENT STANDARD ACQUISITIONS.—During the last three years certain members of the Standard group have revived their former policy of expansion through the acquisition of independent petroleum interests. The more important recent acquisitions include the Humble Oil & Refining Co., the Midwest Refining Co., the acquisition of a half interest in the Sinclair Pipe Line Co., and the formation of the Sinclair Crude Oil Purchasing Co. This latter company is owned jointly by the Standard Oil Co. (Indiana) and the Sinclair Consolidated Oil Corporation. The Humble Oil & Refining Co. was acquired by the Standard Oil Co. (New Jersey), while the Standard Oil Co. (Indiana) acquired the other interests.

The acquisition of the Humble Oil & Refining Co. gave the Standard Oil Co. (New Jersey) important producing, pipe line, and refinery properties in Texas. The recent purchase of the Midwest Refining Co. by the Standard Oil Co. (Indiana), through the exchange of Standard for Midwest stock, has given the Standard interests almost complete control of production, pipe-line transportation, and refining properties in the State of Wyoming. The Standard Oil Co. (Indiana) acquired approximately 33 per cent of the stock of the Midwest Refining Co. during 1920, while by June, 1921, the Standard had acquired 85 per cent of the Midwest stock. In 1919 the Midwest Refining Co. and allied interests and Standard companies controlled almost 94 per cent of the crude petroleum production of Wyoming, they operated 99 per cent of the trunk pipe lines, transported over 97 per cent of the crude petroleum marketed, and consumed almost 94 per cent of all the Wyoming crude petroleum refined.[b]

During 1921 the Standard Oil Co. (Indiana) purchased a one-half interest in the Sinclair Pipe Line Co. The pipe lines of this company extend from the oil fields of northern Texas and of Oklahoma to the vicinity of Chicago. As already stated, a crude petroleum purchasing company, called the Sinclair Crude Oil Purchasing Co., has been organized and is to be owned jointly by the Standard Oil Co. (Indiana) and the Sinclair Consolidated Oil Corporation. The organization of this crude purchasing company and the acquisition of a half interest in the pipe-line company will enable the Standard Oil Co. (Indiana) to purchase crude directly from the producer in the Mid-Continent field.

Section 8. Basis of Standard control.

In the rest of the United States, as in the Pacific coast region, the Standard group of companies exercises a dominating influence

[a] Wall Street Journal, Nov. 22, 1921.
[b] See Report of the Federal Trade Commission on the Petroleum Industry of Wyoming.

in the petroleum industry, not merely by reason of the magnitude of the various units with respect to production and capital investment, but also because of their solidarity, arising apparently from an interlocking stock ownership resting largely in the hands of a comparatively few great capitalists; and, furthermore, because of the great financial resources and credit of this group. As long as they follow the general trend of fundamental market conditions they are practically in a position to make the market price, and thus to obtain all the financial advantages which accrue to those having advance knowledge of price changes in trade and the capital profitably to exploit that knowledge.

APPENDIX.

EXHIBITS.

EXHIBIT 1.

ANSWER OF UNION OIL CO. OF CALIFORNIA.

UNION OIL BUILDING,
LOS ANGELES, CALIFORNIA.

W. L. STEWART, *President.*

SEPTEMBER 27, 1921.

FEDERAL TRADE COMMISSION,
Washington, D. C.

Attention Mr. Nelson B. Gaskill, Acting Chairman.

DEAR SIRS: This is to acknowledge receipt of your favor of August 20th, 1921, with enclosure of a memorandum which you claim to be a summary of principal facts regarding the conditions of competition and evidence of price collusion between representatives of this Company and of other companies within the marketing territory of this Company.

You state that these facts are shown by certain indicated letters secured from the files of this Company. It should be noted that the letters indicated by you were written principally in the years 1915 and 1916 and none later than February, 1917, and they deal with certain situations as then existing at one place in the State of Arizona and at a few points in the State of California.

It is a known fact that for many years past the wholesale open market prices of gasoline and distillate on the Pacific Coast have been regulated by the prices fixed by Standard Oil Company, and that the other marketing concerns in that territory have fixed their sales prices so as to correspond with the prices established by that company. This is the natural and unavoidable situation resulting from the fact that a large percentage of the oil refining and marketing business has been in the hands of that corporation, and has not been brought about by any agreement between the marketing companies for the fixing of prices.

The wholesale prices of gasoline and distillate at various points on the Pacific Coast have been and are established with reference to the prevailing prices at Los Angeles and San Francisco, and any change in prices at base points is followed by a corresponding change in prices at all other points.

Some of the letters cited by you refer to a situation in the Kingman District in Arizona caused by the increase in prices at base points. When the increase was made Union Oil Company of California made corresponding changes in its prices in the Kingman District in Arizona. Standard Oil Company failed to make an immediate adjustment of prices in that district. The result of this was that Union Oil Company was charging more for gasoline and distillate in the Kingman District than the prices quoted by the Standard Oil Company. This would, of course, result in a loss of business to the Union, and its employees were seeking to ascertain if the Standard intended to increase its prices in accordance with the increases theretofore made by it at base points, or if the Union would be compelled to return to the schedule formerly in effect in order to retain its customers and remain in the field of competition.

We submit that in view of these facts the letters in question do not show an attempted collusion in the fixing of prices.

The other letters written to and from the same (Kingman) district in Arizona at most show an attempt to arrive at an understanding among marketers in that district that established prices and price differentials would be adhered to. The obvious purpose of this was to prevent the adoption of unfair competitive methods.

The remaining letters cited by you refer to situations in the State of California embracing transactions which were purely local in character and involved no question of interstate commerce. These letters do not deal with price fixing, but instead with trade differentials,—basic prices being established as hereinbefore explained.

It has been and is the custom among marketers to allow differentials to certain classes of purchasers, such as garages, service stations, tractor owners, public service corporations, municipalities, etc.,—these differentials being in the form of stated deductions from existing market prices.

The adoption and recognition of uniform differentials and classifications of purchasers to whom the same should be allowed; and territorial zones within which a given price based upon distances of haulage should prevail, has a tendency to prevent the demoralization of market conditions.

The history of the oil industry throughout the United States shows that the adoption of unfair trade practices among the marketers, such as the allowance of special terms, secret differentials, free use of equipment, etc. to customers for the purpose of obtaining business brings about cut-throat competition resulting in no ultimate benefit to the consumer, but, on the contrary, in loss to the marketer, frequently driving those who are unable to survive such methods entirely from the field of competition.

While there is no intention on the part of the management of this Company to deny responsibility for the acts of its representatives, it may be proper to state that the different transactions referred to in the letters were unknown to the management until brought to its attention by your investigation, and that there are no existing agreements between this and other companies for the fixing of basic prices, differentials, classifications or marketing conditions in the oil industry.

Should you desire any additional statement or explanation with respect to the matters referred to in your communication to us we will endeavor to furnish the same.

Respectfully submitted.

(signed) W. L. STEWART, *President.*

EXHIBIT 2.

ANSWER OF STANDARD OIL CO. (CALIFORNIA).

STATEMENT OF GENERAL SALES POLICY.

STANDARD OIL COMPANY

K. R. KINGSBURY,
President.

SAN FRANCISCO, CAL.
September 28, 1921.

FEDERAL TRADE COMMISSION,
Washington, D. C.

Attention Hon. Nelson B. Gaskill.

GENTLEMEN: We submit herewith reply to each question in your letter of August 26, 1921:

We believe the Commission will appreciate the difficulty of explaining isolated transactions occurring in some instances many years ago and which are selected from the millions of transactions of the company, as well as the difficulty of producing records many years old to support the company's replies. The time required to search the records has occasioned some delay in this response.

As the letters and other documents attached in reply to the Commission's query will show conclusively, the company's prices and trade classifications were at all times under the control of the General Office. Price recommenda-

tions made by agents required the authority and approval of this office. No alleged arrangements or understandings, if any, which took place between agents of this company and any competitor could have had any binding effect unless made or approved by the Home Office. The Home Office records clearly refute the existence there of knowledge of any such occurrence.

Under the Non-Discriminatory Laws of the State of California, effective in 1913, the company cannot sell its products except at one price, that is, a base price plus freight, except that prices may be lowered to meet competition. As a consequence in the operation of the company's three refineries located at Richmond, El Segundo and Bakersfield, California, the prices at which the company sells the products from these refineries, are the base refinery prices plus freight to railroad point of delivery. Not only does this apply to California, but the company follows this procedure throughout the Pacific Coast States in which it distributes the products from its refineries.

The prices at which the Company offers its products are a matter of public knowledge and these prices are made solely by the Board of Directors and are at all times based upon economic conditions.

If the accompanying report does not clear up entirely the questions asked by the Commission, we will be glad to furnish any further information for which the Commission may call.

Respectfully yours,

(signed) K. R. KINGSBURY.

RELATIONS WITH OAKLAND AUTOMOBILE ASSOCIATION.

Question 1. During September, 1914, letters secured from the Standard Oil Company's files show that an invitation was received from the Automobile Industries Association of Oakland, California, to send a representative to a meeting (and a representative attended) at which "we hope to be able to devise some plan in which a staple differential of price can be maintained." (See Automobile Association letter September 22, 1914, and letter from F. A. Williamson to H. T. Harper, September 25, 1914.)

Answer. Pursuant to the invitation of the Automobile Industries Association (Exhibit 1-1), the Oakland Agent of the Company attended a meeting on September 24, 1914. The report of his attendance to Mr. Harper, the then Manager of the Sales Department, indicates that Mr. Williamson rather hesitated attending the meeting "by reason of our past"—meaning, obviously, by reason of our past policy. (Exhibit 1-2).

Mr. Williamson's report to Mr. Harper recites that he stated that the Company was represented merely in the capacity of a wholesaler—that it had nothing to say as to what the retail price should be. He refers to the fact that some doubt was expressed concerning the Standard Oil Company having a direct interest in the National Supply Company. In point of fact, the National Supply Company had not been taken over at the date of Mr. Williamson's attendance on this meeting, and there was no way for him to know that the negotiations for the purchase of the National Supply stations had reached the point where they would shortly be consummated. Mr. Williamson reports that he emphasized that the Company was not retailing gasoline (meaning by that that the Company maintained no retail price as distinguished from its wholesale price), and for that reason he did not see what the Company had to do with retail prices. He distinctly withheld expressing himself as to the profit that should be had. He explained that what led him to go "was the intimation that there might possibly be a landslide by the Association from ourselves."

There can be no question that Mr. Williamson acted with propriety in attending this meeting, and that the Standard Oil Company could not well decline an invitation extended by those who represented many of its customers. To refuse to attend would have been an act of gross discourtesy. The Company's agent did the only thing feasible under the circumstances, that is, attended the meeting but took no part in the discussion of prices—being in fact himself not aware at the time that his Company would shortly be interested in retail prices.

There was a second meeting of the Automobile Industries Association, the invitation to attend which was sent to the Standard Oil Company on October

8, 1914. (Exhibit 1-3). The invitation was referred to the Company's agent at Oakland with the suggestion that the matter of attending the meeting was left to his own judgment. (Exhibit 1-4.) He did not attend the meeting.

[Exhibits 1-1 to 1-4 attached.]

AUTOMOBILE INDUSTRIES ASSOCIATION.

1540 Broadway, Oakland, Cal.

SEPT. 22, 1914.

STANDARD OIL CO.,
200 Bush St., San Francisco, Cal.

Attention of Sales Mgr.

DEAR SIR: Since the installation of the gasoline service stations within the Bay District, there has been much cutting in the price of gasoline and as our association represents about sixty-five dealers who sell gasoline, we believe it only fair and just that they should be entitled to a legitimate profit on each sale of such product.

Therefore, the Association kindly invites your firm to send an authorized representative to our meeting, which will be held next Thursday evening, Sept. 24th, at the Commercial Club rooms, top floor of the Hotel Oakland, of this city. At that time we hope to be able to devise some plan in which a staple differential of price can be maintained.

We cannot impress upon you too strongly the importance of this meeting and ask that you make a special effort to be present. No dinner will be served and the meeting will be called to order at 8 P. M. sharp.

Asking for your co-operation in this matter ,we are

Yours very truly.

AUTOMOBILE INDUSTRIES ASSOCIATION
Per (SGD) HERBERT S. SMITH

HSS/ES

[EXHIBIT 1-1]

PERSONAL

OAKLAND, CAL., *Sept. 25, 1914.*

Mr. H. T. HARPER,

Standard Oil Company,
San Francisco, Calif.

Garage Association.

DEAR SIR: Last evening, in the Commercial Club rooms in the Hotel Oakland, the second meeting in the organizing of a garage association took place, the several representatives of the different companies, in a wholesale way, being requested to be present.

This invitation was received by the undersigned at the last moment. I rather hesitated attending a meeting of this character by reason of our past, but concluded, from something I heard from a friend on the street, that it was really advisable that I be there simply as a spectator; hence I attended. I asked also to have our Mr. Munro there.

The several representatives of the other companies were there. From the Union, Mr. Dutton and Local Manager Wallisch; from the Pinal Dome, Mr. Stevens; from the Pacific States, cannot recall his name now; from the Shell, Mr. Sinclaire. The Associated were not present.

The association numbers 90 firms at this time and seems to have made considerable progress since their original date of organization. Tires and the Gasoline situation were their problems. I stated simply that we were there in the capacity of wholesalers; that we really had nothing to say as to what the retail prices should be, but some doubt was expressed concerning our having any direct interest in the National Supply Company; and I stated that that matter had been made plain twice by written statements from the President of our Company—we did not know how we could make it any stronger.

I further emphasized that we were not retailing Gasoline and that for this reason we did not see where we had anything to do with the retail price.

An attempt was made to bring out what was thought to be a reasonable margin for the handling of Gasoline, the conclusion being that it would be well for several garages to tab the actual time taken from the delivery, cost of the man's time, leakage loss, the added cost of insurance because of the Gasoline hazard or risk, etc. One of the representatives, Mr. Dutton, rather emphasized that they should have five cents per gallon profit, for which he received some applause.

I distinctly withheld from expressing myself as to the profit that might be had but believe that it may be finally concluded that 1¼¢ above what is referred to as market list may be made a correct price. This may be slightly deducted from for firms that are large commercial users. It is somewhat on the basis of tire schedules.

What led me to go was the intimation that there might possibly be a landslide by the Association from ourselves and it appeared from the general trend of the meeting last night it was best for us to be represented.

Yours truly,

F. A. WILLIAMSON

FAW:EEE

P. S. Without my raising the question, the Internal Revenue Tax of 2¢ per gallon was discussed and turned down by the Association, with the thought that the tax is deemed advisable. "Consumers will have to pay it and we cannot help it."

F. A. W.

[EXHIBIT 1-2]

AUTOMOBILE INDUSTRIES ASSOCIATION

1540 Broadway Oakland Cal

OCT. 8, 1914

STANDARD OIL CO.
200 Bush St., San Francisco, Cal.

Attention of Sales Manager

DEAR SIR: You are kindly invited to attend our meeting next Thursday evening, October 8th in the Commercial Club Rooms, top floor of the Hotel Oakland, of this city.

At this time the gasoline question will be further discussed and some definite action will be taken.

Retail gasoline dealers from Richmond, Berkeley, Alameda, San Leandro, Hayward and Oakland will be in attendance and we cannot urge too strongly the importance of having your firm represented.

No dinner will be served and the meeting will be called to order at 8 P. M. sharp.

Soliciting your co-operation in this matter, we are

Yours very truly,

AUTOMOBILE INDUSTRIES ASSOCIATION
(Signed) per HERBERT S. SMITH

[EXHIBIT 1-3]

R 444

SAN FRANCISCO, CAL., *Oct. 5, 1914*

Subject: Meeting of Garage Association

MR. F. A. WILLIAMSON,
Oakland, Calif.

DEAR SIR: Referring to your letter of Sept. 25th regarding the meeting of the Garage Association held in the Commercial Club Rooms at the Hotel Oakland:

We are enclosing you notice of a second meeting, which we have just received from this Association. We will leave the matter of your attending this meeting to your judgment.

Yours truly,

HTP:P

[EXHIBIT 1-4]

KINGMAN (ARIZ.) CASE.

Question 2. During October, November and December, 1915, J. H. Balsley, then District Sales Manager, and E. T. Ferguson and Mr. Harlan of the Standard had numerous conferences with representatives and agents of a competitor regarding the maintenance of uniform prices for gasoline, kerosene and engine distillate at Kingman, Arizona. Documents on file with the Commission state that the above named agents of your company promised "to line up with" your competitor "on prices." What were your prices at Kingman, Arizona, for gasoline, kerosene and engine distillate from June to December, 1915, with date of price changes?

Answer: There is absolutely no foundation for the suggestion that the Standard Oil Company's prices at Kingman, Arizona, during October, November and December, 1915, or at any time, were the result of conferences with representatives and agents of a competitor, or that this Company at any time agreed to "line up with" a competitor on prices. The written record fully refutes these intimations.

The prices for gasoline, kerosene and engine distillate at Kingman, Arizona, during the period referred to, and the El Segundo Refinery base prices during the same period were as follows:

GASOLINE.

Date.	El Segundo base price.	Kingman price.
1915	Cents.	Cents.
June 1	11½	13
July 1	11½	17
July 7	11	16½
Sept. 23	12	17½
Oct. 5	13	18½
Oct. 26	14	19½
Nov. 27	15	20½

KEROSENE.

June 1	9	13½
July 1 [1]	9	14½

[1] Balance of 1915—No further change.

DISTILLATE.

June 1	6	13
July 1	6	17½
Sept. 23	7	12½
Oct. 5	7½	13
Oct. 26	8½	14
Nov. 27	8½	13
Nov. 29	8½	14

The above tabulation shows that with two exceptions the changes in Kingman prices followed absolutely changes in the El Segundo base price. The two exceptions are (a) the reduction of 1c effective at Kingman July 1, 1915, and (b) the increase of 1c on engine distillate at Kingman on November 27, 1915.

(a) The reduction of 1c on all products effective July 1, 1915, at Kingman, was made to meet competitive conditions. In a report made by Mr. Balsley, District Sales Manager of Arizona, to Mr. Harper, under date of June 17, 1915 (Exhibit 2-1) and a subsequent report dated June 26, 1915 (Exhibit 2-2), Balsley complains of the Union Oil Company's cut in price and "their reported boast to the interests at Kingman that they are going to do business if they are compelled to do it at a loss." Mr. Balsley complains that "our dealers are selling their products at their cost price in order to meet the Union competition." Mr. Balsley requested authority to lower the list price 1½c per gallon on gasoline or to establish a list, that is, retail price, and go after the business direct. The

head office at San Francisco did not fully accord with Mr. Balsley's recommendation as to a reduction in price, but authorized a price reduction at Kingman on all products of 1c a gallon in order to meet the competitive prices reported by him. This reduction, effective July 1, 1915, was authorized by the Home Office on June 30, 1915 (Exhibit 2–3), directly in response to Mr. Balsley's report of June 17, 1915, and June 26, 1915, that competitors were hauling and delivering in the outlying districts of Kingman at a nominal figure and was made to enable dealers who were handling Standard Oil products to meet the competitive conditions. This is quite apparent from Mr. Balsley's letters of June 17, 1915, and June 26, 1915. (Exhibits 2–1 and 2–2).

It is respectfully suggested that the reduction of 1c of July 1, 1915, at Kingman, Arizona, which was authorized at the Home Office for the reasons set forth in Mr. Balsley's letter, does not show that the agents of the Company promised to "line up" with the Company's "competitor" on prices, or that if any such promise was made, any attention was paid to it, or that it was carried out in any respect by the Company. It is assumed that a decrease of 1c to meet the competitive condition described by Mr. Balsley is not what the Federal Trade Commission had in mind in referring to "a line up on prices." But this decrease made for the purpose mentioned, was the only price change at Kingman, Arizona, which did not follow changes in El Segundo Refinery base prices, except the instance next described, which was effective for only two days.

(b) On November 26, 1915, District Sales Managers, including Mr. Balsley, were instructed by the San Francisco Home Office to advance the price on gasoline and naphtha 1c (Exhibit 2–4). On November 29, 1915, the Home Office was advised that through an error in translation of the code telegram, the price on engine distillate had also been advanced by the Arizona District Sales Manager and that this advance had remained in effect for one day only, the error being corrected immediately. The Home Office noted the error and approved the correction. (Letter December 2, 1915, Exhibit 2–6.)

Thus it appears that there was no price change at Kingman, Arizona, during the period mentioned which did not follow changes in the El Segundo base price, except the single instance of a reduction of 1c effective July 1, 1915, to meet the competitive hauling conditions at that point.

[Exhibits 2–1 to 2–6 attached.]

PHOENIX, ARIZ., *June 17, 1915.*

Subject:
Conditions at Kingman, Arizona.

Mr. H. T. HARPER,
Standard Oil Bldg.,
San Francisco, Cal.

DEAR SIR: We have enjoyed a large percentage of the available business at Kingman since opening our station thru the co-operation of Tarr & McComb Lovin & Withers and the United States Stores Co.

When the Union Oil Co. opened their Station last Fall, the Arizona Stores Co. diverted their business to the Union.

This gave us about 75% of the business, the balance going to the U. O. Co.

Thru some misunderstanding with the U. O. Co. the Ariz. Stores Co. severed their business relations with the Union recently, giving us the business. This placed the Union in such a position that they necessarily had to go after the consuming trade.

They have placed in operation at Kingman this past week a 3½ ton combination tank wagon and package truck. They are going to sell to the Mines and to the consuming trade direct, and are, also, in a position to deliver. Undoubtedly they will deliver at about actual cost, which will further decrease the cost of oils to the consumer in the outlying districts, as Tarr & McComb and Lovin & Withers have charged a rather excessive rate for hauling.

I am giving you all of this information so that when I write again, you will be armed with the facts.

It would seem policy for us at the present moment to sit tight and await developments, as we have all of the large interests on our side,—and still in the writer's opinion it would indicate that it is only a question of time before the

Union will secure the largest percentage of the business thru the fact that they will sell direct at the list price and do the hauling at a nominal figure.

At this date some of our larger interests there have asked for a better differential, so that they would be able to meet the Union's competition. The list prices at Kingman will hardly stand for another increase as it would put Kingman open to competition from Los Angeles by doing so.

I will keep in close touch with this situation and make my recommendations after sifting the matter down a little further.

The truck which was placed in operation is a combination 3½ ton Velie with a 900 gallon tank arranged so that it can be taken from the bed and the Truck used for case and barrel deliveries.

Yours very truly,

JEB-E

J. E. BAILEY,
District Sales Manager.

[EXHIBIT 2-1]

R-977

PHOENIX, ARIZ., *June 26, 1915.*

Subject:
Conditions at Kingman.

Mr. H. T. HARPER,
Standard Oil Bldg.,
San Francisco, California.

DEAR SIR: Referring again to conditions at Kingman:

The writer has just returned from that field, and finds a rather perplexing situation there.

It is apparent that the Union Oil Co. have lowered the list price at Kingman 1½¢ per gal. The present price condition cannot be construed any other way, as they are selling to every small consumer, merchandise house, and Mining Company at our Dealer's price, which is 1½¢ off list on iron barrels and cases.

On top of this cut in price they are making deliveries to the mines, etc., at about one half of the cost per ton of which Lovin & Withers, Tarr & McComb and the Arizona Stores charge. This gives the small owner the benefit of our present dealers' price at Kingman, besides allowing them to enjoy a freight haul which figures about 2¢ per gallon less than what they have formerly paid.

The country tributary to Kingman is not suitable for a truck, altho the operating companies at Kingman use short coupled wagons with as high as ten to sixteen mules to drag the loads over the mountains. The Union have been experiencing a large amount of difficulty in making the trips; in fact, the truck has refused to go over certain mountains, and they have had to pay exorbitant freight charges to the freighting companies to pick them up on the road and deliver the goods to the consumers. I feel confident in saying that to any well organized company their present business policy would not allow them to keep it up very long, provided they want to do business at a profit. They have made the boast to the interests at Kingman that they are going to do business if they are compelled to do it at a loss, and this is apparently what they are doing. Our dealers are selling our products at their cost price in order to meet the Union competition. This, of course, they will not be able to keep up for any length of time. Tarr & McComb, Lovin & Withers and the Arizona Stores Co. all voiced their opinion that they wanted to still handle the business and buy our products, but asked for a differential under their present price so as to enable them to do business and make a small profit.

There seems to be but two avenues open to us at Kingman: One is to lower our list price 1½¢ per gal., giving the dealers their present differentials off list. This would enable the dealer to obtain a small profit, and I believe we would continue to secure a large portion of the business even though the freighting charge of these companies is higher than the Union's.

I doubt if the Union will pursue their present freighting policy very long, unless they desire to lose money.

The other avenue would be to establish a list price and go after the business direct. This would be very costly way of doing business, as it would necessitate placing a salesman in the field to stay at Kingman permanently. We would have to buy him an automobile. We would be compelled in a certain measure to

extend credit to small mines that take all the way from six to nine months to pay their bills. We would either have to purchase an auto truck to make deliveries, or would be compelled in a measure to meet the Union's laid down prices by employing freighting outfits.

I would like to secure for you concrete evidence of this price which the Union is making, and I believe I will be able to forward you some of their invoices in the near future. There is no question but what the price is correct, as we verified it in many ways.

It would seem that it is imperative for us to arrange price conditions at Kingman so as to give the dealers their profit at once, or change our selling policy completely and go after the trade direct.

I would be pleased to have your version of what you believe should be done, after reading the information which I have given you.

Yours very truly,

District Sales Manager

JEB*E

[EXHIBIT 2-2.]

R 977

SAN FRANCISCO, CAL., *June 30, 1915.*

Subject:
Conditions at Kingman.

Mr. J. E. BAILEY,
Phoenix, Ariz.

DEAR SIR: We have carefully gone into the matter relative to conditions at Kingman, as mentioned in your letter of June 26th, but cannot fully concur with you in your recommendations as to the reduction in price.

Will suggest that immediately upon receipt of this letter, you reduce your prices at Kingman on Refined Oil, Red Crown Gasoline and Engine Distillate, both bulk and cases, 1¢ per gallon and after complying with the above kindly advise this office the prices that will be in effect at Kingman.

It is our impression that this reduction in price should meet the competitive conditions that exist, and at the same time allow a sufficient margin for the jobbers in that vicinity to handle our products.

Kindly keep careful watch of the situation and advise us fully of any changes.

Yours truly

V.

HTP:P

[EXHIBIT 2-3]

R-922

SAN FRANCISCO, *Nov. 26, 1915.*

Subject:
Changes in Prices.

LA
Sp
Pt
Ho
Ta
Fr
RD
Px
Ho

DEAR SIR: We have just wired you requesting you to put into effect an advance of 1¢ per gallon in your prices on all deliveries of Red Crown Gasoline and VM&P Naphtha at all points, commencing to-morrow Nov. 27th, as per

confirmation herewith enclosed. This it will be noticed affects Red Crown Gasoline and VM&P Naphtha only.

Please acknowledge receipt, advising prices in effect after complying with the above.

Yours truly,

GCM:B

[EXHIBIT 2-4]

PHOENIX, ARIZ., *Nov. 29th, 1915.*

Advance in Prices.

Mr. H. T. HARPER,
Standard Oil Co.,
San Francisco, Cal.

DEAR SIR: Referring to your telegram of the 26th inst. instructing us to increase the price of Red Crown Gasoline and VM&P Naphtha 1¢ all deliveries.

In some unaccountable manner this message was translated as Red Crown Gasoline and Engine Distillate. Your telegram of the 27th advising us of our error, was received too late to make correction that day, and to avoid the general confusion of corrected invoices and refunds on cash sales, we permitted an advance of 1¢ per gallon on Engine Distillate to remain in effect for November 27th only, reducing same to original price, effective Monday the 29th. Would ask, therefore, that this information be given to proper parties so that they may have information for checking our prices on Engine Distillate November 27th.

Yours truly,

J. E. BALSLEY

TGT:FM

[EXHIBIT 2-5]

SAN FRANCISCO, *Dec. 2, 1915.*

Subject:
Advance in Prices

Mr. J. E. BALSLEY,
Phoenix, Arizona.

DEAR SIR:—We have your letter of the 29th ult. and note that you advanced your market prices on Engine Distillate at all points in your field 1¢ per gallon on Nov. 27th due to mistranslation of telegram; the advance, however, remaining in effect only one day.

It is hardly necessary for us to suggest that translations of code telegrams, especially those relating to changes in market prices should be carefully checked, and we assume that you will take steps to insure this being done in the future.

Yours truly,

GCM:B

[EXHIBIT 2-6]

CLASSIFICATION OF CUSTOMERS.

Question 3. From December 10 to 13, 1915, instructions were sent to agents of the Standard Oil Co. and agents of its principal competitor containing substantially the same classification of customers and the same differentials to be allowed each class off the retail price of gasoline and engine distillate. And letters of your competitor state that each company mutually promised the other to apply uniform differentials to favored classes of customers. During Decem-

ber, 1915, and January-May, 1913, the agents of the Standard Oil Co. and its principal competitor frequently conferred with each other and agreed upon the classification of certain large consumers.

Answer. The instructions sent to Agents of Standard Oil Company December 10th and December 12, 1915, classifying the trade and differentails to be allowed each class of trade, merely summarized, for purposes of classification, rulings that had been made months before.

On July 12, 1913 (Exhibit 3-1) the San Francisco Office directed all agents to apply certain differentials to garages, large stock companies and large manufacturing concerns, on Red Crown Gasoline and Engine Distillate. On September 8, 1914 (Exhibit 3-2) all District Sales Managers were advised from the General Office to allow a differential of 2¢ on Red Crown Gasoline to garages and service stations and a differential of one cent off the list price to auto truck concerns and others who are using machines for business purposes.

On September 11, 1914, Mr. Quinn the Los Angeles Agent (Exhibits 3-3) advised his salesmen in a circular letter, of the differentials that had been authorized by the San Francisco Office. On February 4, 1915 (Exhibit 3-4) circular letter from the San Francisco Office to all agents, withdrew authority previously granted, to quote 2¢ per gallon off list price on Red Crown Gasoline to State Departments, Counties, Municipalities and United States Government and gave authority to quote one cent per gallon off to classes of trade enumerated. On October 11, 1915, the General Office (Exhibit 3-5) instructed the Agents at Los Angeles, San Diego and Phoenix to change the differential on distillate from one cent to one-half cent on certain classes of trade.

On December 10, 1915 (Exhibit 3-6) Mr. Quinn the Los Angeles Agent advised that the differential of one cent per gallon off list price of gasoline should be applied to fish canneries, as well as one-half cent per gallon off list price of distillate. These people were obviously in the same class as those using motor trucks and automobiles in their business as to gasoline and were resellers as to distillate as they supplied the fishing boats.

On December 12, 1915 (Exhibit 3-7), Mr. Quinn asked for authority to allow one half cent off on engine distillate to garages and filling stations for the reason that this class of trade was receiving similar discounts from other companies.

On December 12, 1915, (Exhibit 3-8) Mr. Quinn directed a circular letter to all of his agents classifying the trade entitled to discounts on gasoline and engine distillate. This classification was merely a summary of classification that had originated months before and with additions of authority granted by the General Office between September, 1914, and September, 1915, is substantially the same classification that Mr. Quinn furnished to his salesmen in 1914. Letter of December 16, 1915, from the General Office to Mr. Quinn (Exhibit 3-9) is also attached approving Mr. Quinn's request of December 12, 1915, that engine distillate be offered the garages and service stations at one half cent per gallon off list price to meet competitive conditions.

Mr. Quinn's letter of December 12, 1915 (Exhibit 3-8) classifying his trade as to price differentials, first refers to garages and filling stations and including all resellers such as motorcycle agencies, repair shops, etc., equipped with self-measuring pump or sidewalk buggy so as to serve gasoline, is merely an elaboration of the instructions issued by Mr. Quinn on September 11, 1914 (Exhibit 3-3) to all salesmen. In his letter of September 11, 1914 (Exhibit 3-3) referring to service stations, he says he means those people who are catering to automobile trade on Red Crown Gasoline and Lubricating Oil and in doing so have equipped themselves with self-measuring pump, sidewalk pump or gasoline buggy. Hardware stores, grocery stores and general merchandise stores entitled to one cent off when without self-measuring pump as shown in the letter of December 12, 1915 (Exhibit 3-8) varies but little from Mr. Quinn's instructions of September 11, 1914 (Exhibit 3-3) in which he classifies grocery stores and hardware stores who buy gasoline to resell but do not operate wheel buggy or sidewalk pump, as entitled to one cent off the list price. Industrial plants, motor truck operators, stage lines, taxicab companies entitled to one cent off as per Mr. Quinn's letter of December 12, 1915 (Exhibit 3-8) is the authority as conveyed in the General Office letter of September 8, 1914 to all District Sales Managers (Exhibit 3-2) in which they are instructed to allow Auto Trucking Concerns and others who are using machines for business purposes, one cent per gallon off prevailing market prices. Municipalities, consisting of State and County

Business, Government and State, Mr. Quinn's letter of December 18, 191
(Exhibit 3-6) shows entitled to a differential on gasoline and engine distil
late. This was under authority from the General Office under letter of D
cember 14, 1915, directed to all agents (Exhibit 3-4) and authority from th
General Office (Exhibit 3-5) to agents at Los Angeles, San Diego and Phoenix

There was no understanding or agreement on the subject of classification
and the classification of December 1915 was purely a summarization of classi
fications theretofore made.

[Exhibits 3-1 to 3-6 attached.]

R-52

SAN FRANCISCO, CAL., *July 12, 1913*

Subject:

Orders or contracts—Red Crown Gasoline & Engine Distillate.

ALL AGENTS (Except Nome)

DEAR SIR: It has been your custom for some time past to accept orders o
contracts for Red Crown Gasoline and Engine Distillate at a flat price. W
will ask that immediately upon receipt of this letter you discontinue thi
practice and accept orders or contracts for Red Crown Gasoline from garage
at 1¢ off your prevailing market price at the time of delivery. From large stock
companies and large manufacturing concerns, where necessary, at ½¢ off you
prevailing market price at the time of delivery.

As to the Engine Distillate, it is the intention as well to accept these order
under the conditions outlined above, and they should be taken only at ½
off your prevailing market price at the time of delivery.

If there should be an occasion where conditions are such as to render it neces
sary to make better quotations than stated above, before giving definite answe
to your customer kindly take up the matter with this office.

We do not wish at any time to accept orders for these products at a flat price
and it is our impression that conditions are such that you will be able to secur
a maximum amount of business on the plan as outlined above.

Please acknowledge the receipt of this letter and advise if the same is fully
understood.

Yours truly,

P

HTP: P

[EXHIBIT 3-1.]

R 322-10

SAN FRANCISCO, CAL., *Sept. 8, 1914.*

Subject: Reduction in Price—Red Crown Gasoline

ALL DISTRICT SALES MANAGERS,

DEAR SIRS: Referring to recent advice of reduction of 1¢ per gallon in price
of Red Crown Gasoline: Would advise that whenever necessary you may allow
Garages and Service Stations a price of 2¢ per gallon off your prevailing mar
ket price on Red Crown Gasoline. You may apply this price without the neces
sity of making a contract.

As to the auto trucking concerns and others who are using machines for busi
ness purposes: You may allow on Red Crown Gasoline 1¢ per gallon off your
prevailing market price, no contract required.

In applying these prices, it should be your particular aim to secure the busi
ness of concerns who are likely to purchase a good gallonage, and also those
who are in a position to either buy for cash or to settle their accounts shortly
after the monthly delivery period.

It certainly seems that with the reduction in price we have mentioned, and
with this leeway we are now granting you for marketing Red Crown Gaso
line, you should be able to rapidly increase your sales of that product, and

should be only a short time before you are able to fully overcome existing competitive conditions.

Regarding the contracts that are now in force with Garages: Of course, this price will apply to them as well, but at their expiration it will not be necessary to renew them unless you are advised to do so at a later date.

If these instructions are not fully understood, kindly advise.

Yours truly,

HTP:P

P. S. This is to be effective at once.

[EXHIBIT 3-2.]

STANDARD OIL COMPANY

LOS ANGELES, CAL. *Sept. 11, 1914.*

ALL SALESMEN:

DEAR SIR: Please be advised that the following are the differentials to be allowed certain trade on Red Crown Gasoline.

To eliminate any possibility of error in applying these prices we wish to state that you be very particular in applying the correct price to the correct class of trade.

The differential of 2¢ off your list price applies to Garages, Service Stations and Peddlers.

The term "Garage" we trust is distinctly understood.

By "Service Station" we mean those people who are catering to automobile trade on Red Crown Gasoline and Lubricating Oil, and in doing so have equipped themselves with a Self Measuring Pump or Sidewalk Pump or a Gasoline Buggy.

"Peddlers" are as the name implies.

The names of all Peddlers in your field who are entitled to the 2¢ should be on file at this office before extending this price.

Grocery stores and Hardware Stores who buy gasoline to resell, but do not operate a Wheel Buggy or Sidewalk Pump to handle the gasoline trade, are to be allowed 1¢ off your list price. This, regardless of the quantity they may use. Those people operating Motor Trucks are entitled to 1¢ off list price. To all others your list price prevails.

We wish it distinctly understood that the above mentioned differentials do not change your open list price. We trust that this matter is now thoroughly understood.

Yours truly,

LAL-VB
DA #127

[EXHIBIT 3-3]

cc for Mr Malle:

Portland
Seattle
Tacoma
Spokane
Honolulu
San Francisco
Oakland
San Jose
Stockton
Fresno
Sacramento
Phoenix
San Diego
Los Angeles

FEBRUARY 4, 1915

R. C. Gasoline Quotation—State Departments, Counties, municipalities and U. S. Government.

DEAR SIR: Referring to our letter of September 23, 1914, in which you were given permission to quote Red Crown Gasoline on State Department, County

and Municipal bids at 2¢ per gallon off the prevailing market price at the time of the proposal:

May we ask that you kindly cancel these instructions, and until further advised on these proposals, offer Red Crown Gasoline at a flat price based on 1¢ per gallon off your prevailing market price on the date of the proposal.

We are referring particularly to requests which you are continually receiving for small quantities, so should you receive requests for prices from any of those mentioned above, which you believe would require special consideration, will ask that you take up the matter with this office before quoting.

These instructions will also cover bids and quotations to the United States Government, which come to you direct, without passing through this office.

Will you kindly advise if this letter is fully understood.

Yours truly,

HTP:P

P. S. This will not make any change in the instructions we have issued regarding prices at which to bid on Engine Distillate.

[EXHIBIT 3-4]

B-58

OCTOBER 11, 1915

Bids to Municipal Bodies

Los Angeles
San Diego
Phoenix.

DEAR SIR: Under authority from this office, you have in the past submitted bids and made prices to municipal bodies for furnishing Engine Distillate on the basis of 1¢ below our market price at point of delivery.

Will you kindly consider this authority withdrawn, and in the future submit bids and quotations to the class of trade mentioned for Engine Distillate on the basis of ¼¢ below our market price at point of delivery. In cases where, in your opinion, a special reason, such as quantity involved, exists for making an exception to this rule, you are of course at liberty to take the matter up with us.

The above does not affect Government and State business which you may continue to handle on the same basis as heretofore, namely 1¢ below our ruling market price.

Kindly acknowledge receipt.

Yours truly,

GCM-B
Copy to Mr. Haskell

[EXHIBIT 3-5]

STANDARD OIL COMPANY
1727 San Fernando Street

LOS ANGELES, CAL. *Dec. 10, 1915.*

DEAR SIR: In another letter to-day I gave you classification of trade and differentials to apply thereto which applies to other than marine business. Therefore in addition to the letter above referred to, you can allow 1¢ per gallon off list price on Gasoline to the various fish canneries, and ¼¢ per gallon off list price on Distillate.

All boats will be list price on Gasoline, and list price on Distillate, irrespective of class of boat or quantity taken.

In view of the above may I ask that you kindly take this matter up with the cannery people at any early date, explaining the price to them and the differentials, but take no contracts either on Distillate or Gasoline.

Yours truly,

JLQ/D

[EXHIBIT 3-6]

LOS ANGELES, CAL., *Dec. 13, 1915*

Price—Engine Distillate.

PERSONAL

Mr. H. T. HARPER,
San Francisco, Cal.

DEAR SIR: When I was in San Francisco last I took up with you relative to allowing a differential on Engine Distillate of ½¢ per gallon off to such customers that were receiving similar discounts from other companies so as to retain our gallonage.

It is the custom in this field for all other companies to allow ½¢ per gallon off on Engine Distillate to garages and filling stations. I am attaching copy of a letter that I have written all salesmen and agents throughout the field. I would request that we be permitted to allow the garages and filling stations ½¢ per gallon off without contract, as indicated in my letter.

In addition to this letter I am attaching copy of another letter that I have written those in charge of sub-stations where boat business is done.

This will stabilize our prices and I trust meets with your approval.

Yours truly,

(Sgd) J. L. QUINN

JLQ:D

[EXHIBIT 3-7]

STANDARD OIL COMPANY

LOS ANGELES, CALIF., *Dec. 13, 1915.*

DEAR SIR: At some points some of our Agents have misunderstood our rulings on classification of trade and the differentials that apply thereto, and in order that there should be no misunderstanding in the future, I am pleased to give you below the following:

	Red Crown Gasoline	Engine Distillate
	per Gallon	
	Off list at date of delivery	
Garages	2¢	1/2¢
Filling Stations	2¢	1/2¢

(By filling stations you will interpret our ruling to mean regular equipped service stations, as well as Motorcycle Agencies and Repair Shops, Automobile Agencies, Accessory Stores, Hardware Stores, Grocery Stores, all of which have either a self-measuring pump or sidewalk buggy on the outside of their building so as to serve Gasoline direct from the pump to the machine.)

	Gasoline	*Eng. Distillate*
Hardware Stores	1¢	Without S. M. Pump List
Grocery Stores	1¢	" " " "
General Merchandise Stores	1¢	" " " "
Industrial Plants	1¢	List
Motor Truck Operators	1¢	"
Stage Lines	1¢	"
Taxicab Companies, etc.	1¢	"
Municipalities consisting of towns, city and county business	1¢	1/2¢
Government & State	1¢	1¢

To such trade as tractor operators, pumping plants of all kinds and sizes, auto owners and all trade not listed above will be list price on Gasoline, and list price on Engine Distillate.

The above ruling is mandatory and must be put into effect at once with the exception of where we have contracts out that are below these prices, and if there are any contracts in effect in your field, kindly send us a list of them so we can check them with our office records, and this at your earliest convenience.

Kindly acknowledge receipt.

Yours truly,

[EXHIBIT 3-8]

R–477–12

SAN FRANCISCO, *Dec. 16, 1915.*

Subject:

Special Prices to Trade.

Mr. J. L. QUINN,
Los Angeles, Cal.

DEAR SIR:—We have your letter of the 13th inst. (JLQ–D) on the subject of "Price—Engine Distillate." We have noted the differentials which you are allowing various classes of trade on Red Crown Gasoline and Engine Distillate, and in view of the conditions existing in your field, we approve of the same. You will, of course, report these concessions on the non-contract price advice cards as they are put into effect.

Yours truly,

GCM:B

[EXHIBIT 3-B]

IMPERIAL VALLEY WATER COMPANIES CASE.

Question 3-a. Among the agreements on identical classifications and price differentials were those covering the water companies in the Imperial Valley in May, 1916, in which case the agents of each company were instructed about the same date to allow the water companies a differential of one cent per gallon off the list price of gasoline and one-half cent per gallon off engine distillate.

Answer: In spite of diligent search we have been unable to locate any records showing the price differentials allowed by this Company to Water Companies in the Imperial Valley during May, 1916. We are continuing the search for this record.

Our records do show that in June, 1916, prices were authorized to Imperial Water Companies: 2¢ off our market price, date of delivery, on Red Crown Gasoline, and 1¢ off our market price, date of delivery, on engine distillate. These differentials were made to meet competitive prices.

By reason of the lapse of time that has intervened, our agents have no independent recollection of these matters, except that there was no agreement or conference on the subject at any time between this Company and any competitor.

DAN EMMET CASE.

Question 3-b. It was agreed that Dan Emmet, in the Ventura, California District was not entitled to a differential from the retail price;

Answer: Our records show that we sold goods to Dan Emmet but we are unable to locate the price records. Either Dan Emmet came within the classification which entitled him to a differential from the list price, or he did not fall within such classification and as a consequence received no differential. There were many occasions when tank wagon drivers extended differentials to customers who were not entitled to differentials and when the auditing check of the transaction was made, either in the main agency or the San Francisco Office, and it was found that differentials to which customers were not entitled had been made, the driver was promptly instructed to withdraw these differentials.

CAFÉS AND RESTAURANTS CASE.

Question 3-c. During January and February, 1917, the Standard and no competitor agreed to discontinue the practice of allowing restaurants and cafés in the El Centro, California district a differential of one-half cent per gallon off the list price for engine distillate.

Answer: Effective February 1, 1917, the Los Angeles agent of the company discontinued the special price of ½¢ per gallon on engine distillate theretofore allowed the various restaurants throughout the Imperial Valley, and so notified the Home Office. (Letter dated January 31, 1917, from J. L. Quinn to H. T. Harper, Exhibit 3-C-18). Mr. Harper, the Sales Manager, immediately requested the reason for withdrawing the special price saying "We are especially interested inasmuch as you had previously recommended this allowance." (Letter from H. T. Harper to J. L. Quinn, February 2, 1917, Exhibit 3-C-19).

To this Mr. Quinn replied that he withdrew the price because the Union Oil Company had notified its restaurant trade that thereafter all distillate would be list price and that the special price had been withdrawn "as it was no longer necessary to meet that competition." (Letter J. L. Quinn to H. T. Harper, February 7, 1917, Exhibit 3-C-20). This met with a sharp response from the General Sales manager. He advised Mr. Quinn

"THERE IS NOTHING ELSE FOR US TO DO BUT TO APPROVE WHAT YOU HAVE DONE. HOWEVER, THIS HAS BEEN HANDLED IN A MANNER ENTIRELY CONTRARY TO OUR POLICY IN CONNECTION WITH THE MATTER OF SPECIAL PRICES. YOU SHOULD SET FORTH WHEN YOU WISH TO HAVE PRICE CHANGES CONSIDERED, YOUR REASONS FOR DESIRING SUCH CHANGE. IT IS OUR WISH THAT IN THE FUTURE, BEFORE TAKING ANY ACTION WITH REGARD TO CHANGES IN PRICES OR WITHDRAWAL OF SPECIAL PRICES YOU REFER THE MATTER TO THIS OFFICE FOR OUR DECISION." (Letter H. T. Harper to J. L. Quinn, February 9, 1917, Exhibit 3-C-21).

There was no agreement between the Standard Oil Company and any competitor for the discontinuance of the special price in question. Mr. Harper's letter of February 2nd asks the local sales agent why he wanted the special price withdrawn and expressed himself as specially interested because the allowance had been made on the special agent's recommendation. The special agent's action in withdrawing the special price without previous authority and upon sufficient reason given therefor to the Home Office was sharply disapproved. The allowance in question had originally been made to meet a competitive condition. This is disclosed in the attached correspondence.

In Mr. Quinn's letter of October 24, 1916 (Exhibit 3C-1), he calls attention to the fact that the Union Oil Company is allowing 1/2¢ off the market price to restaurants in the Imperial Valley which use approximately from 5,000 to 6,000 gallons per year, and Mr. Quinn asked permission to meet this reduction. Under date of October 26, 1916 (Exhibit 3-C-2), he was authorized to arrange to supply restaurants in the district mentioned with engine distillate on the basis of the 1/2¢ below market price. He was directed to furnish a list of the concerns in the Imperial Valley to whom this special price would be extended (Harper to Quinn, Exhibit 3-C-2). Under date of November 13, 1916, Mr. Harper again called for the list of restaurants which were to have this special price (Harper to Quinn, Exhibit 3-C-4). By letter dated November 16, 1916 (Exhibit 3-C-7), Mr. Quinn furnished the list of restaurants to receive this price concession (Exhibit 3-C-6). The Auditors of the Company at the Home Office were notified accordingly (Exhibits 3-C-8 and 3-C-9). Under date of November 28, 1916 (Exhibit 3-C-10), Mr. Quinn was advised that concessions of this nature should be handled in the form of a special price and he was directed to refer any future allowance which he desired to make to the Home Office for authority.

Under date of December 7, 1916, Mr. Quinn requested authority from the Home Office to allow restaurants in the field "irrespective of the Imperial Valley" using 6,000 gallons of engine distillate per year 1/2 ¢ off the market price because the Union Oil Company was making such allowance (Exhibit 3-C-11). By letter dated December 11, 1916 (Exhibit 3-C-12), he was advised that the Home Office was unwilling to extend this concession to sections "other than those affected by your recent authority."

By letter of January 10, 1917 (Exhibit 3-C-14), Mr. Quinn requested authority to extend the Imperial Valley restaurant price concession theretofore granted to restaurants listed at the Home Office to other restaurants in the Imperial Valley, as per list enclosed by him (Exhibit 3-C-15). This authority was given to him by letter dated January 17, 1917 (Exhibit 3-C-15).

By letter dated January 24, 1917 (Exhibit 3-C-16), Mr. Quinn requested authority to extend the 1/2 ¢ allowance to Harry Kent who operated a restaurant in Imperial Valley and who consumed approximately 6,000 gallons of engine distillate per year. This request for authority was granted under date of January 26, 1917 (Exhibit 3-C-17). There followed Mr. Quinn's unauthorized discontinuance of the reduction in question, the inquiry from the Home Office why he made it, and the criticism of the Home Office of his action in making it without authority. It is submitted that no situation could more clearly disclose the complete control which the Home Office insisted on exercising, in respect to prices in the various districts than this correspondence. That the Home Office could not have been advised of any understanding in respect to the discontinuance of the allowance in question is plain on the face of the correspondence (Exhibits 3-C-18 to 3-C-21 inclusive).

Mr. Quinn denies emphatically that he discontinued the allowance in pursuance of any understanding with the Union Oil Company, and states that he thought he could properly discontinue the allowance when he found that the Union Oil Company was withdrawing the concession, because he had been permitted in the first instance to make the concession in order to meet the Union Oil Company's competition. This action was contrary to Home Office orders and to the policy of the Company.

[Exhibits 3-C-1 to 3-C-21 attached]

STANDARD OIL COMPANY

LOS ANGELES, CAL. *Oct. 24, 1916.*

Price—Engine Distillate.

Mr. H. T. HARPER,

Most of the restaurants in the Imperial Valley use Engine Distillate for fuel. The Union Oil Co. are allowing them ½¢ per gallon off the market price due to the quantity they are using, as they use approximately 5000 to 6000 gallons per year, and I would recommend that we be permitted to meet this competition, as there are a dozen or more of these large concerns who are purchasing through the Union Oil Company at this time for the reason that they are allowing them ½¢ below list price.

Appreciating your consideration of the above, I am,

J. L. QUINN

JLQ/D

[EXHIBIT 3-C-1]

R-477-120

SAN FRANCISCO, *Oct. 26, 1916*

Subject: Prices to Restaurants, Imperial Valley

Mr. J. L. QUINN,
Los Angeles, Cal.

We have your letter of the 24th, JLQ/D, on the subject of restaurants in the Imperial Valley using Engine Distillate for fuel, their requirements amounting to approximately 6,000 gallons per year.

We note also that the Union Oil Co. are allowing this class of trade ½¢ off the market price.

You may arrange to supply restaurants in the district mentioned with Engine Distillate on the basis of ½¢ below our market price at time and place of delivery.

Please furnish us with a list of the concerns in the Imperial Valley that will be extended this special price.

H. T. HARPER

GCM:M

[EXHIBIT 3-C-2]

R-477-120

SAN FRANCISCO, *Nov. 13, 1916.*

Subject: Prices to Restaurants, Imperial Valley

Mr. J. L. QUINN,
Los Angeles, Cal.

Please advise if you are now in position to reply to our letter of October 26th, on the subject of restaurants in the Imperial Valley using Engine Distillate for fuel, and to give us the information requested.

H. T. HARPER

HRM:M

[EXHIBIT 3-C-4]

STANDARD OIL COMPANY

477–130

LOS ANGELES, *Nov. 16, 1916*

Prices to Restaurants, Imperial Valley

Mr. H. T. HARPER:

We are in receipt of your letter of November 13th, file R–477–130, asking if we are in position to furnish lists of restaurants in the Imperial Valley using engine distillate for fuel.

Kindly be advised we expect to have this list completed today and will get it off to you this evening.

J. L. QUINN

HEH–N

[EXHIBIT 3–C–5]

CONCERNS OR INDIVIDUALS IN IMPERIAL VALLEY USING SIX THOUSAND GALLONS OR MORE DISTILLATE PER YEAR FOR FUEL PURPOSES, ENTITLED TO PRICE CONCESSION.

Calexico, Cal.

Border Bakery Co.,
The Fountain Cafe,
The Oyster Loaf Cafe,
Palace

Holtville, Cal.

County Club Restaurant,
Victoria Cafe,
Holtville Bakery,

El Centro, Cal.

Main Chop House,
Broadway Chop House,
Guy McMains.

Brawley, Cal.

Bungalow Hotel,
Popular Cafe,
Al & Jacks' Cafe,
Sunrise Restaurant,
Fritz's Cafe,
National Hotel,
Sanitary Bakery.

Imperial, Cal.

American Bakery,
Home Bakery,
Shamrock Cafe,
Saddlerock Cafe,
Valley Cafe.

[EXHIBIT 3–C–6]

STANDARD OIL CO.

LOS ANGELES, *Nov. 16, 1916.*

Prices to Restaurants in Imperial Valley R–477–130.

Mr. H. T. HARPER:

Replying to your letter October 26th above file and subject requesting that we furnish you with a list of the concerns in the Imperial Valley using engine distillate for fuel, their requirements amounting to approximately six thousand gallons per year and being entitled to price concession of ¼¢ below market price at time and place of delivery.

Kindly be advised that we are herewith enclosing the list of these concerns and trust this is the information wanted.

J. L. QUINN.

HEH–N

[EXHIBIT 3–C–7]

R-477-130

SAN FRANCISCO, *November 28, 1916.*

Subject:
Prices to Restaurants, Imperial Valley.

Mr. H. K. FLETCHER:

Attention Mr. Haskell

The Los Angeles Agency has been authorized to record special concession of 1/2¢ on Engine Distillate requirements of the following accounts:

Shamrock Cafe	Imperial,	Cal.
Valley Cafe	"	"
Home Bakery	"	"
American Bakery	"	"
Foot's Cafe	"	"

Deliveries to the above will be made by the Imperial, Cal. Sub-Station, billing being done by the Los Angeles Agency.

H. T. HARPER.

HSM:CFK

[EXHIBIT 3-C-8]

R-477-130

SAN FRANCISCO, *November 28, 1916.*

Subject:
Prices to Restaurants in Imperial Valley.

Mr. H. K. FLETCHER:

Attention Mr. L. T. Haskell

Please be advised that we have authorized the Los Angeles Agency to extend a special concession of 1/2¢ below our ruling market price at time of delivery on the Engine Distillate requirements of the accounts shown:

Calexico, Cal., Sub-Station

Border Bakery Co.,
The Fountain Cafe,
The Oyster Loaf Cafe,
The Palace Cafe.

Holtville, Cal., Sub-Station

County Club Restaurant,
Victoria Cafe,
Holtville Bakery.

El Centro, Cal., Sub-Station

Main Chop House,
Broadway Chop House,
Guy McMains.

Brawley, Cal., Sub-Station

Bungalow Hotel,
Popular Cafe,
Al & Jack's Cafe,
Sunrise Restaurant,
Fritz's Cafe,
National Hotel,
Sanitary Bakery.

Imperial Cal., Sub-Station

American Bakery,
Home Bakery,
Shamrock Cafe,
Saddlerock Cafe,
Valley Cafe.

You will note that the various accounts are headed by the Sub-Station from which we intend making deliveries, billing to be done by the Los Angeles Agency.

H. T. HARPER.

HSM-M

[EXHIBIT 3-C-9]

R-477-130

SAN FRANCISCO, *November 28, 1916.*

Subject:
Prices to Restaurants, Imperial Valley.

Mr. J. L. QUINN:

With further reference to our letter of November 13th above subject and file.

We are in receipt of Price Advice Non-Contract cards taken out in the names of the following:

Shamrock Cafe	Imperial, Cal.
Valley Cafe	" "
Home Bakery	" "
American Bakery	" "
Foot's Cafe	" "

It was our desire that concessions to accounts of this nature be handled in the form of a special price.

You will kindly make record of an allowance of 1/2¢ on Engine Distillate requirements of the above in your Special Price records, arranging to refer any further allowance you desire to make to this office for authority.

Please acknowledge receipt, advising if this letter is thoroughly understood.

H. T. HARPER.

HSM: CFK.

[EXHIBIT 3-C-10.]

STANDARD OIL COMPANY.

LOS ANGELES, CAL., *Dec. 7, 1916.*

Price to Restaurants, Imperial Valley.

Mr. H. T. HARPER.

Kindly refer to your letter of October 26th, on the above subject, file R-477-130:

We find that the Union Oil Company are allowing all restaurants in this field who use approximately 6,000 gallons of Engine Distillate per year, this irrespective of the Imperial Valley, 1/2¢ off the market price.

Could we recommend that we be allowed to meet this competition throughout our field? We, of course, will advise you name of each party allowed the concession.

Awaiting your advice, we are,

J. L. QUINN

HAL-McS.

[EXHIBIT 3-C-11.]

R-477-130

SAN FRANCISCO, *Dec. 11, 1916.*

Subject:
Price to Restaurants, Imperial Valley.

Mr. J. L. QUINN:

We have your favor of Dec. 7th, HAL-McS, regarding the above subject.

It is noted that the Union Oil Co. are allowing all restaurants in your field who use approximately 6,000 gallons of Engine Distillate per year special price of 1/2¢ off the ruling market at time and place of delivery.

In connection with your suggestion that a similar special price be offered by us, wish to say that we do not desire to extend same to sections other than those affected by your recent authority.

H. T. HARPER.

HSM: M.

[EXHIBIT 3-C-12.]

Calipatria, Cal.	*Brawley, Cal.*
S. B. Woodman,	Star Restaurant,
Milen & Sorrels,	Park Cafe.
C. S. McKinney.	

[EXHIBIT 3-C-13.]

LOS ANGELES, *Jan. 10, 1917.*

Prices to restaurants in Imperial Valley.

Mr. H. T. HARPER:

Referring to previous correspondence above subject, your file R-477-L and R-477-130. We are enclosing herewith an addition to our list sent you under date of November 16th of restaurants in the Imperial Valley using 6,000 gallons or more Engine Distillate per year and being entitled to concession in price.

With further reference to yours November 28th, R-477-130, would kindly ask that you give us authority to make this concession in price on the list enclosed.

J. L. QUINN

HEH-N

[EXHIBIT 3-C-14.]

R-477-130

SAN FRANCISCO, *January 17, 1917.*

Subject:

Prices to Restaurants in Imperial Valley.

Mr. J. L. QUINN:

Replying to your letter of January 10, 1917, HEH-N, relative to the above subject.

You may consider this your authority for extending a special concession of 1¢ below ruling market at time of delivery on Engine Distillate requirements of the following accounts:

Star Restaurant	Brawley, Cal.
Park Cafe	" "
Woodman, S. B.	Calipatria, Cal.
Milen & Sorrels	" "
McKinney, C. S.	" "

Please acknowledge receipt by forwarding Form Sales 364, in duplicate, obliging,

H. T. HARPER

HSM-M

[EXHIBIT 3-C-15.]

LOS ANGELES, *Jan. 24, 1917.*

Prices to Restaurants in Imperial Valley

Mr. H. T. HARPER:

With reference to previous correspondence under above subject, your File R-477-130, would request your authority to allow Mr. Harry Kent, Holtville, Cal., one-half cent off on engine distillate.

Mr. Kent operates a restaurant and will use approximately six thousand gallons of distillate a year.

J. L. QUINN

JIS-N

[EXHIBIT 3-C-16]

R-477-130

SAN FRANCISCO, *January 26, 1917.*

Subject—

Prices to Restaurants in Imperial Valley

Mr. J. L. QUINN:

Replying to your letter of the 24th inst., JIS-N, relative to the above subject:

You may consider this your authority for extending a special price of 1¢ per gallon below ruling market on Engine Distillate requirements of Mr. Harry Kent, Holtville, Cal., who, we understand, operates a restaurant and will consume approximatey 6,000 gallons of Engine Distillate per year.

Please acknowledge receipt by forwarding Form Sales 364, in duplicate, obliging,

H. T. HARPER

HSM-M

[EXHIBIT 3-C-17]

LOS ANGELES, CAL., *Jan. 31, 1917.*

Prices to Restaurants in Imperial Valley

Mr. H. T. HARPER:

Effective February 1, 1917 we have discontinued allowing special price of 1¢ per gallon off on Engine Distillate to various restaurants throughout the Imperial Valley; henceforth our price to them will be full list price.

J. L. QUINN

HAL-McS

[EXHIBIT 3-C-18]

SAN FRANCISCO, *February 2, 1917.*

Subject—

Prices to Restaurants in Imperial Valley.

Mr. J. L. QUINN:

We have your letter of January 31, HAL-McS, in connection with the above subject.

It is noted, effective February 1, 1917, you will discontinue allowing special price of 1/2¢ per gallon to the various restaurants throughout the Imperial Valley, and as a matter of information would like to ask the reason for withdrawing this special price. We are especially interested inasmuch as you had previously recommended this allowance.

H. T. HARPER.

HSM-M

[EXHIBIT 3-C-19]

LOS ANGELES, CAL., *Feb. 7, 1917.*

Prices to Restaurants in Imperial Valley.

Mr. H. T. HARPER:

Replying to your letter of Feb. 2, R-477-130, on the above subject:

The reason we withdrew this price was that the Union Oil Company have notified their restaurant trade that hereafter all Distillate to them would be list price.

In view of this we withdrew our special price as it was no longer necessary to meet that competition, and trust this meets with your approval.

J. L. QUINN.

JLQ/D

[EXHIBIT 3-C-20]

R-477-130

SAN FRANCISCO, *Feb. 9, 1917.*

Subject:

Prices to Restaurants in Imperial Valley.

PERSONAL.

Mr. J. L. QUINN:

Referring to your letter of Feb. 7th, with reference to withdrawing special price on Engine Distillate to restaurants in the Imperial Valley:

There is nothing else for us to do but to approve what you have done. However, this has been handled in a manner entirely contrary to our policy in connection with the matter of special prices. You should set forth, when you wish to have price changes considered, your reason for desiring such change.

It is our wish that in the future, before taking any action with regard to changes in prices or withdrawal of special prices, you refer the matter to this office for our decision.

H. T. HARPER.

HDC:M

[EXHIBIT 3-C-21]

FOLSOM CASE.

Question 4-a. In August 1913, it was agreed that "the laid-down price at Folsom should be one cent above Sacramento prices" (See letter Aug. 9, 1913, from G. H. Mayer to H. T. Harper).

Answer: A letter of August 9, 1913, (Exhibit 4-A-1), written by G. H. Mayer, at that time the Sacramento Agent of Standard Oil Company, to Mr. Harper is referred to. The letter was in reply to one dated August 7, 1913 (Exhibit 4-A-2) written to Mr. Mayer by Mr. Maile chief clerk for Mr. Harper, Manager of the Sales Department, which letter, in turn, referred to a report of August 1st:

"The customers at Folsom are complaining because the Union Oil Company tank wagon is selling Water White oil at 10¢ and gasoline at 10¢, or 1¢ less than our laid down prices."

Mr. Mayer, in the same letter, was requested to verify the statement made in this report, and advise the San Francisco office in regard to the same; also, at what prices refined oil, gasoline and engine distillate were being sold by auto tank wagons operated by other parties at the points named above. To this Mr. Mayer replied in the letter noted by the Federal Trade Commission that the prices quoted in the report were correct. Mr. Mayer proceeds to inform the San Francisco Office that:

"Some time ago the Union Oil Company's representative had the matter up with the writer."

This was obviously the first intimation that the writer had "had the matter up" with the Union Oil Company. He proceeds

"and we, in turn (i. e., had the matter up) with you and got your authority to make a laid down price at Folsom 1¢ above Sacramento prices."

He proceeds to say:

"They adhered to this arrangement until recently, and as their word is not to be relied upon, we would suggest, with your approval, that the price

at this point be again made ½¢ below (he means "above") our Sacramento prices."

The suggestion contained in this letter that Mr. Mayer "had made an arrangement" with the Union Oil Company, or that he had "had the matter up" with their representative, led to Mr. Mayer's removal from the Sales Department. He was transferred to the General Office at the close of the following month and is now with the Producing Department of the Company. His action was a direct violation of the instructions of the Home Office and of the entire policy of the Company. Mr. Mayer got authority to make a laid down price at Folsom 1¢ above Sacramento prices. The fact that he obtained this authority pursuant to an "arrangement," which he later reported to have made with the representative of the Union Oil Company, was unknown to the Directors. The disapproval of his conduct was emphasized to him by his transfer from the Sacramento office. That Mr. Mayer's reported "arrangement" with the Union Oil Company in respect to the laid down price at Folsom prior to August 9, 1913, was not known to the Board of Directors of the Company is indicated by the correspondence between Mr. Mayer and Mr. W. S. Miller, a Director of the Company in charge of its sales; to-wit, a letter from Mr. Mayer to Mr. Miller dated July 14, 1913 (Exhibit 4–A–3), and from Mr. Miller to Mr. Mayer dated July 16, 1913 (Exhibit 4–A–4), copies of which are attached. These letters contain a sharp complaint by Mr. Mayer that—

"the Union Oil Company in the vicinity of Sacramento, by tank wagon delivery, undersell us ½¢ on gasoline and distillate, but at points like Folsom and Roseville, which we can not reach by tank wagon and they have no competition, they get the full price."

Mr. Miller's reply of July 16, 1913, advises Mr. Mayer that he must expect competitors to undersell the Standard Oil Company and tells him that—

"You know, of course, you cannot buy a yard of silk at the same price you can a yard of muslin. You always have to take the actual value of the goods into consideration."

Mr. Miller was telling Mr. Mayer that the superior quality of the Standard Oil Company's goods should enable Mr. Mayer to meet competition with quality rather than by the cutting of prices. If there had been an arrangement between this company and the Union Oil Company, this correspondence would not have taken place.

Mr. Mayer's recommendation in his letter of August 9, 1913, was not approved and was not acted on. The attached copy of a letter from the Head office, dated October 30, 1913 (Exhibit 4–A–5), and addressed to Mr. D. G. Hillman, who had been placed in charge of the Sacramento Sales Office in place of Mr. Mayer, shows that Mr. Mayer's recommendation was not approved or acted upon, and that the laid down price at Folsom was maintained at 1¢ above Sacramento prices. The attached letters to and from Mr. Hillman, dated February 2, 1914 (Exhibit 4–A–6) and February 4, 1914 (Exhibit 4–A–7), show that the price was maintained at this differential until that date.

[Exhibits 4–A–1 to 4–A–7 attached.]

SACRAMENTO, CAL., *August 9, 1913.*

Subject:

Union Oil Co., selling Water White and Gasoline at ½¢ less than our laid down prices.

Mr. H. T. HARPER,
San Francisco, Cal.

DEAR SIR: In reply to your letter, R–323, of the 7th instant, relative to the above subject, please be advised that the prices given in Mr. Renwick's Report made by the Union Oil Company at these points is correct.

Sometime ago the Union Oil Company's representative had the matter up with the writer and we in turn, with you, and got your authority to make a laid down price at Folsom 1¢ above Sacramento prices. They adhered to this arrangement until recently, and, as their word is not to be relied upon, we would suggest, with your approval, that the price at this point be again made ½¢ below our Sacramento prices.

The Union Oil Company are not making delivery by *Auto* Tank Wagon at these points mentioned, but are having the products shipped in iron packages and dumped into their Tank Wagon and in this way they make their deliveries.

There are no other parties operating Tank Wagons at the above named points as yet.

Very truly yours,

(Signed) G. H. MAYER.

[EXHIBIT 4-A-1]

SAN FRANCISCO, *August 7, 1913.*

Subject:

Union Oil Co., selling Water White and Gasoline at ¼¢ less than our laid down prices.

MR. G. H. MAYER,
Sacramento, Cal.

DEAR SIR: We note from Mr. Renwick's report No. 174 of August 1st that customers at Folsom are complaining because the Union Oil Co.'s tank wagon is selling water white oil at 10 cents and Gasoline at 16 cents, or, ¾¢ less than our laid down prices.

We understand that the Union Oil Co. are making deliveries by auto tank wagon, not only at Folsom, but also at Mills, Natomas, and Routiers, at which points we are selling refined products at laid down prices.

Will you kindly verify statement made by Mr. Renwick and advise us in regard to same, also advise at which prices Refined Oil, Gasoline and Engine Distillate are being sold by auto tank wagon operated by other parties at the points named above.

Yours truly,

GCM-M.

[EXHIBIT 4-A-2]

STANDARD OIL COMPANY

SACRAMENTO, CAL., *July 14, 1913.*

Subject.

New prices on Naphtha products.

MR. W. S. MILLER,
San Francisco, Cal.

DEAR SIR: in reply to your letter F-322 of the 11th inst. re above subject, please be advised that the only comment that we have heard on the new prices of Gasoline and Engine Distillate is that handlers of these products are very much pleased with the recent decline, and a number of the autoists have stated that the cheaper gasoline is, the more riding they can do.

Quite a number of garages that we recently signed up under contract have at times used Gasoline sold by our competitors, and have freely admitted that the product we market is superior to any of the competitive goods.

All of our competitors are not only meeting our prices, but are underselling us, especially to customers that are extensve users of these products. Jones & Carvel, who represent the American Oriental Company at Willows, are continually underselling us one cent per gallon in this particular field.

The Union Oil Company, in the vicinity of Sacramento, by Tank wagon delivery, undersell us one-half cent on Gasoline and Distillate, but at points like Folsom and Roseville, which we cannot reach by tank wagon, and they have no competition, they get the full price.

The Monarch Oil Company are underselling us one cent to one cent and a half in practically all parts of our field, especially along the main line. Be-

cently they shipped two carloads of Gasoline to Lake Tahoe, underselling us one cent and a half per gallon, although the writer has heard since, through some friends that have been up there, that they are dissatisfied with these products, as they are not as satisfactory as ours. Consequently we are watching this very closely and are in hopes to get this business back again in the near future.

We have had at least a half dozen carload orders canceled by customers who have never bought from anyone else, on account of our inability to make prompt shipment, owing to shortage of iron packages. Our competitors use this as a talking point, and also tell the trade that they can hold their packages for storage purposes just as long as they want to.

Very truly yours,

(Signed) G. H. MAYER.

[EXHIBIT 4-A-3]

F322

SAN FRANCISCO, *July 16, 1913.*

Subject

New Prices on Naphtha Products

Mr. G. H. MAYER,
Sacramento, Cal.

DEAR SIR: Yours of the 14th instant, New Prices on Naptha Products, received.

We note you say that some of the garages have at times used Gasoline supplied by competitors and have freely admitted that our product is superior to the competitive goods.

We also note that your competitors are meeting your prices and underselling you. I have just completed reading several letters from different stations on this same subject and all of them advise that competitors have met our prices but they have not heard of underselling so that your station is probably an exception. In any event, concerns like some of the smaller ones you have mentioned will undoubtedly undertake to get trade at prices less than ours but, you know of course, you cannot buy a yard of silk at the same price you can a yard of muslin;—you always have to take the actual value of the goods into consideration.

I will say, for your information, that at one station where our competition is much greater than at any other station on the Coast, last week we gained 10,000 gallons on Gasoline, 700 gallons on VM&P Naptha and 9,000 gallons on Engine Distillate and during the month of June we gained 72 new customers. Of course this is a large station but the competition on Naptha products is much greater than at any other station we have on the Coast, our competitors in this particular district selling from ½¢ to 2½¢ less than our price regularly and still people are leaving them and coming to us. There must be a reason.

The Union Oil Company will undoubtedly meet your prices and where they sell in carloads they will sell at the same prices you charge for carloads. You must expect this. The other two concerns you mention have not, so far, been very great competitors. One of them sold Gasoline on contract to several large garages in San Francisco at 2¢ less than the market but the garages that made these contracts are very glad to get rid of such contract as they have had a great deal of trouble, so they tell us, with the product and don't want any more of it.

I note you have had orders cancelled on account of shortage of packages and that you have lost lots of customers. I would like to have you write me fully in regard to this and what the prospects are of supplying the trade with your new equipment. We cannot afford to let trade go on account of insufficient equipment unless it is merely a temporary proposition.

Yours truly,

W. S. M.

WSM-A

[EXHIBIT 4-A-4]

R-332-70

SAN FRANCISCO, *Oct. 30, 1913.*

Subject:

Prices for Auto Tank Wagon Deliveries

Mr. D. G. HILLMAN,
Sacramento, Cal.

DEAR SIR: We understand from telephone communication from your office that your new auto tank truck is now ready for use. Will you kindly put into effect the following schedule of prices for deliveries of Pearl Oil, Red Crown gasoline and Engine Distillate by auto tank wagon:

Points	*Advance over Sacramento Price*
Perkins	1¢
Mills	½
Mayhew	½
Fairoaks	1
Antelope	1
Roseville	1
Folsom	1
Orangevale	1
Rocklin	1
Loomis	1
Lincoln	1

While we have given you prices for deliveries at Orangevale, Rocklin, Loomis and Lincoln, we wish to call your attention to the distance between these points and Sacramento, all of them being more than 20 miles from your main station, and would ask if you consider it necessary or advisable to serve these points by auto tank wagon.

Awaiting your reply, we are

Yours truly,

GCM—M

[EXHIBIT 4-A-5]

SACRAMENTO, CALIF., *Feb. 2, 1914.*

Subject:

Points Reached by Auto Tank Truck.

Mr. H. T. HARPER,
San Francisco, Cal.

DEAR SIR: Referring to your letter of January 29th on the above subject, you will find herein a list of the different points and their distances from our Main station. Also the advance in price:

	Miles from Sacramento	Advance over Sacramento prices
Antelope	13	1¢
Roseville	17	1
Rocklin	21	1
Lincoln	28	1
Perkins	3	½
Mayhew	7	½
Mills	10	½
Fair Oaks	18	1
Orangevale	20	1
Folsom	21	1
Freeport	8	½
Franklin	14	½

I would recommend that our prices to Antelope, Roseville, Rocklin, Fair Oaks, Orangevale, and Folsom be reduced to ½¢ advance over our Sacramento prices. This on account of competitive conditions.

Hoping that you will grant this concession at once, I am

Very truly yours (signed) D. G. HILLMAN

[EXHIBIT 4-A-6]

R-322-70

SAN FRANCISCO, *Feb. 4, 1914.*

Subject:

Points reached by auto tank truck.

Mr. D. G. HILLMAN,
Sacramento, Cal.

DEAR SIR: Your letter of the 2nd inst. on the above subject received.

We note that competitors are making deliveries at Antelope, Roseville, Fair Oaks, Orangevale and Folsom by auto tank truck at ½¢ per gallon over market prices at Sacramento, whereas you have been endeavoring to maintain schedule of 1¢ above your Sacramento prices on deliveries at these points.

In view of existing conditions, we would suggest that you make your prices at these points on Refined Oil, Gasoline and Engine Distillate delivered by auto tank truck ½¢ above prices at Sacramento.

We would also suggest that you make the same differential on deliveries at Lincoln. This will mean that all points served by auto tank truck from Sacramento will carry an advance in price of ½¢ over Sacramento.

Please acknowledge receipt.

Yours truly,

GCM-A

[EXHIBIT 4-A-7]

SAN BERNARDINO-REDLANDS PRICE BOUNDARY.

Question 4-b. Prior to December, 1915, the boundary between the territories taking the Redlands and the San Bernardino prices was agreed upon by the Standard Oil Co. and its principal competitors.

Answer: Prior to December 1915, the company had no station at San Bernardino, and a station was not erected there until October, 1916. San Bernardino prior to the erection of the Station there, was served from Colton. The photographic copies of company's records covering a period from January 1, 1914, to January 16, 1917, Exhibits 4b-1 and 4b-2, show that Redlands was supplying a number of points and that during this period the boundary lines of the Redlands District remained unchanged.

As regards Colton which in 1915 was supplying San Bernardino, the boundary lines of the Colton District remained unchanged until the creation of the San Bernardino Station in October, 1916, when a number of stations theretofore supplied by Colton were transferred to San Bernardino because they were more readily reached from the latter than from Colton.

The attached statement (Exhibit 4b-3), base prices El Segundo refinery on Pearl Oil, gasoline and engine distillate during the period Jan. 1, 1914 to Dec. 31, 1917, will show that the price changes at Colton and Redlands in every instance corresponded to the changes in the El Segundo refinery base prices.

There was no agreement on the subject. The boundary lines of the Redlands district are the same today as they were in January, 1914; the Boundary lines of the Colton district remained unchanged until October 1916, when the San Bernardino station was erected, taking San Bernardino and some stations theretofore supplied from Colton out of the Colton district. There was no change in either district in the year 1915.

The matter of price agreement is clearly refuted by the record which shows that prices moved only in harmony with El Segundo refinery base prices.

[EXHIBITS 4b-1 to 4b-8 attached.]

COLTON.

Salary.	Station opened.	Trans 1-1-14	1914 1-20-14	3-20-14	7-1-14	10-22	2-5-15	1915 7-7	9-23	10-5	10-26	11-27	1-5	2-7	2-15	2-17	4-1	4-6	7-7	7-19	8-11	10-19	10-31	12-3	12 22
	Pearl Oil, tank wagon	10																							
	Pearl Oil, iron barrels	10																							
	Pearl Oil, cases	17½																							
	Headlight Oil, tank wagon																		18		18½				
	Headlight Oil, iron barrels																								
	Headlight Oil, cases																								
	Eocene Oil, tank wagon																								
	Eocene Oil, iron barrels																								
	Eocene Oil, cases	20½																							
	Elaine Oil, cases	28																	21		21½				
	Red Crown Gasoline, tank wagon	14½		15	14.5	13.5	12.5	12	13	14	15	16	17	18	19		20		26		26½	26		21	
	Red Crown Gasoline, iron barrels	14½		15	14.5	13.5	12.5	12	13	14	15	16	17	18	19		20							21	
	Red Crown Gasoline, cases	23		22.5	23	21	20	19.5	20.5	21.5	22.5	23.5	24.5	25.5	26.5		27.5		28		28½			24½	
	V. M. & P. Naphtha, tank wagon																								
	V. M. & P. Naphtha, iron barrels																								
	V. M. & P. Naphtha, cases																								
	Engine Distillate, tank wagon	7½		7					8	8.5	8.5						10.5								11
	Engine Distillate, iron barrels	7½		7					8	8.5	8.5						10.5								11
	Engine Distillate, cases																								
	Gas Machine Gasoline, iron barrels																								
	Gas Machine Gasoline, cases																								
	Arotarpe, iron barrels																								
	Arotarpe, cases																								
	Special Export Barrels	3.75	4.00													4.25				4.50			1917 1-2 5.50		
	Special Export Barrels, brass fences	4.25	4.75													5.00 2.10				5.25			6.25		
	15-Gall. Spec. Stor. Tanks																								

POINTS SERVED BY TANK WAGON:

4½ 9½ 5½ 4½
Bloomington, ~~Del Rosa~~, Loma Linda
4 10
~~Rialto, San Bernardino, Verdemont~~
18
Fontana

Add'l PRICE:
Same as above 4½

BY AUTO TANK TRUCK:
4½ 4½ 10
Rialto, Loma Linda, Bloomington, Fontana
3½ 9 No advance
~~San Bernardino, Del Rosa~~
8-10-16 dev'd C Keanbrook ½c advance.

Market prices (Refined and Naphtha products) at Redlands, Calif., from Jan. 1, 1914 to Jan. 16 1917. [EXHIBIT 4-B-2.]

REDLANDS.

Salary.	Station opened.	Trans 1-1-14	1-20-14	5-20-14	7-1-14	10-22	2-3-15	7-7	9-23	10-5	10-26	11-27	1-5	2-7	3-15	4-1	4-6	7-7	7-10	8-11	10-19	10-31	12-2	12-22
		1914														1915								1917
	Pearl Oil, tank wagon	10¢																						
	Pearl Oil, iron barrels	10																						
	Pearl Oil, cases	17½																	18		18½			
	Headlight Oil, tank wagon																							
	Headlight Oil, iron barrels																							
	Headlight Oil, cases																							
	Eocene Oil, tank wagon																							
	Eocene Oil, iron barrels																							
	Eocene Oil, cases	20½																	21		21½			
	Elaine Oil, cases	28																26			26½	26		
	Red Crown Gasoline, tank wagon	10		15.5	13	14	12	12.5	13.5	14.5	15.5	16.5	17.5	18.5	19.5		20.5						21½	
	Red Crown Gasoline, iron barrels	16		15.5	15	14	13	12.5	13.5	14.5	15.5	16.5	17.5	18.5	19.5		20.5						21½	
	Red Crown Gasoline, cases	23		22.5	22	21	20	19.5	20.5	21.5	22.5	23.5	24.5	25.5	26.5		27.5		28		28½		29½	
	V. M. & P. Naphtha, tank wagon																							
	V. M. & P. Naphtha, iron barrels																							
	V. M. & P. Naphtha, cases																							
	Engine Distillate, tank wagon	7½		7					8	8.5	9.5						10.5							11
	Engine Distillate, iron barrels	7½		7					8	8.5	9.5						10.5							11
	Engine Distillate, cases																							
	Gas Machine Gasoline, iron barrels																							
	Gas Machine Gasoline, cases																							
	Aroturpe, iron barrels																							
	Aroturpe, cases																							
																								1917 1-2
	Special Export Barrels	3.75	4.00													4.25				4.50				5.50
	Special Export Barrels with ¼ faucet	4.25	4.75													5.00				5.25				6.25

POINTS SERVED BY TANK WAGON:

10 5½ 7½ 4½
Alton, Crafton, El Casco, E. Highland
5½ 5 8½ 6½
Highland, Mentone, Oldtown, Patton
3½ 12½
Redlands Jct., Yucipa City.

Add'l PRICE.

Same as above.

El Segundo refinery prices.

	Pearl oil bulk.	R. C. gasoline bulk.	Engine distillate bulk.
Dec. 29, 1913	99	11½	8½
Jan. 1, 1914			
May 20, 1914		14	6
July 1, 1914		13½	
Oct. 22, 1914		13	
Jan. 1, 1915		12½	6
Feb. 2, 1915		11½	
July 7, 1915		11	
Sept. 23, 1915		12	7
Oct. 5, 1915		13	7½
Oct. 26, 1915		14	8½
Nov. 27, 1915		15	
Jan. 5, 1916		16	
Feb. 7, 1916		17	
Feb. 15, 1916		18	
Apr. 6, 1916		19	9½
July 10, 1916			
Oct. 10, 1916			
Dec. 9, 1916		20	
Dec. 23, 1916			10
July 27, 1917			
Aug. 9, 1917			11
Oct. 13, 1917			
Dec. 31, 1917	9	20	11

[Exhibit 4–B–3.]

LOS ANGELES-PASADENA PRICE BOUNDARY.

Question 4–c. Effective February 21, 1916, the prices of refined products at South Pasadena, California, were increased one-half cent per gallon above the Los Angeles prices and the exact boundary between South Pasadena and Los Angeles was fixed by the agents of the Standard Oil Co. and its principal competitor.

Answer. South Pasadena was then within the Pasadena Agency and deliveries were made from Pasadena to South Pasadena as far back as 1904 and up until 1909 South Pasadena took the Pasadena prices. From 1909 to 1916, the price at South Pasadena was reduced one-half cent per gallon below the Pasadena price in order to make the South Pasadena price the same as the Los Angeles price because of competition by companies who were delivering by tank wagons into the South Pasadena District, particularly because of a good highway and because large gallonage was available and therefore attractive from a Los Angeles competitive standpoint. This price condition continued as stated, substantially seven years when Pasadena prices were again restored in South Pasadena because the garagemen and dealers of Pasadena were criticizing the company for charging them one half cent per gallon more on Red Crown Gasoline than was charged garagemen and dealers at South Pasadena, thereby putting the South Pasadena garagemen and dealers in position to undersell the Pasadena dealers. This was particularly noticeable because of the fact that deliveries to South Pasadena were made out of Pasadena tanks and by the same tank wagon that served Pasadena and in many instances on the same route.

In the change of prices above noted, the company had no conference with any competitive company on the subject.

PRICES AT TOPANGA CANYON.

Question 4–D. In May, 1916, the price on refined petroleum products at Topanga Canyon was fixed at one-half cent per gallon above the Santa Monica price by representatives of the Standard Oil Co. and its principal competitor.

Answer. On May 10, 1915, see copy of letter attached (Exhibit 4–D–1), the Sales Manager at Los Angeles wrote to the General Sales Manager in San Francisco, that he would shortly be in a position to make full tank wagon loads of Red Crown Gasoline and Pearl Oil to Topanga for the account of J. A. Craig and that he had arranged owing to the long haul, so that delivery would be made in full tank wagon loads at a price of one half cent above the Santa Monica price. On May 13, 1915, this price was confirmed to the Auditor

of the company as per copy of letter attached (Exhibit 4–D–2) and this differential of one-half cent per gallon is still effective as of this date. There was no price differential change at this point in May 1916, and there was no agreement regarding the Topanga price with any competitor at any time.

[Exhibits 4–D–1 to 4–D–2 attached.]

STANDARD OIL COMPANY

LOS ANGELES, CALIF., *May 10, 1915.*

Price at Topanga—Red Crown Gasoline.

Mr. H. T. HARPER.
San Francisco, California.

DEAR SIR: We will very shortly be in position to make full tank wagon loads of Red Crown Gasoline and Pearl Oil to Topanga, for the account of J. A. Craig.

This delivery will be made from Santa Monica station, and we have arranged, owing to the long haul, so that delivery will be made in full tank wagon loads at price of 1¢ above Santa Monica price.

We might mention that Topanga is about 12 miles from Santa Monica.

Very truly yours,

(sgd) J. L. QUINN

HAL–McS

[EXHIBIT 4–D–1.]

R–153

SAN FRANCISCO, *May 13, 1915.*

Subject: Tank Wagon Deliveries to Topanga from Santa Monica.

Mr. H. K. FLETCHER.
——— *Building.*

Attention Mr. Haskell.

DEAR SIR: Our Los Angeles District Sales Manager advises that tank wagon deliveries will be made to the Town of Topanga at one-half cent per gallon above the regular market price in effect at Santa Monica. Will you kindly make record and oblige,

Yours truly.

[EXHIBIT 4–D–2]

PRICES AT CASTAIC.

Question 4–e: In January 1917, J. L. Quinn for the Standard Oil Co. and an agent of a competitor agreed that deliveries made to Castaic, California, would be one-half cent per gallon over the Saugus, California price.

Answer: On October 14, 1916 in response to letter from the General Office Mr. Quinn furnished a statement of sub-stations showing points served by each station, together with the distance and differentials, also methods of delivering. The attached exhibit (4–E–1) shows Castaic as served from San Fernando Station at a charge of one cent over the San Fernando price. On March 14, 1917 (Exhibit 4–E–2) Mr. Quinn the Los Angeles Agent in response to letter from San Francisco Office of March 5, 1917 furnished the San Francisco Office certain advice with reference to instances where the Los Angeles record did not agree with the record in the Los Angeles Office. You will note that under San Fernando reference is made to "Castrar" which should be Castaic, and that the charge there is an advance of one cent over the San Fernando price.

On April 21st, 1917, the Los Angeles Agent, Mr. Quinn, wrote Mr. Harper that he would no longer be able to secure the 1¢ differential to cover tank wagon

deliveries from San Fernando to Castaic (Exhibit 4-E-3). Mr. Harper replied from the General Office on April 26, 1917 (Exhibit 4-E-4) that he infers that the differential has already been cancelled although it is not stated whether the differential is now ½¢ or the San Fernando Price. At the same time Mr. Harper says—

"WE WISH TO EMPHASIZE THE RULING THAT NO CHANGES ARE TO BE MADE IN MARKET PRICES EXCEPT ON THE AUTHORITY OF THIS OFFICE. PRICES ESTABLISHED AT VARIOUS PLACES ON DELIVERIES BY OUR TANK WAGONS OR TANK TRUCKS ARE ESSENTIALLY MARKET PRICES, AND ARE SUBJECT TO THE SAME REGULATIONS AS PRICES AT THE ACTUAL POINT AT WHICH WE MAINTAIN A SUBSTATION."

Mr. Quinn replied on May 8th (Exhibit 4-E-5) that he would recommend the cancellation of the one cent differential between San Fernando and Castaic and he did not feel that it would be possible to secure the one half cent differential for deliveries to Castaic. Further, that he was awaiting the authority of the General Office to cancel the differentials referred to above.

On May 15, 1917, Mr. Harper responded (Exhibit 4-E-6) in which he stated that in view of the distance to be travelled, he would like to ask if any attempt had been made to secure the business at the point in question at a differential of one half cent per gallon. On June 21, 1917 (Exhibit 4-E-7) Mr. Quinn wrote Mr. Harper "After a thorough investigation we can see no reason why we should not obtain one-half cent above the San Fernando price for delivery to Castaic, etc."

This change was duly approved by the General Office in letter of June 25, 1917 (Exhibit 4-E-8) and this differential of one-half cent still applies to date on deliveries from San Fernando to Castaic.

The fact that for three months before this alleged agreement and for five months thereafter, the price differential remained the same and at a different figure than that which it is charged was agreed to should be sufficient reply to the suggestion that there was an arrangement.

[Exhibits 4-E-1 to 4-E-8 attached.]

LOS ANGELES, CAL., *October 14, 1918.*

List showing all Points Served by Substations

Mr. H. T. HARPER:

As per your request of July 31st, by HSMc/F, File R-322, upon the above subject, we are enclosing herewith a list of our Substations showing all points served by each station, together with the distance and differential, also method of delivering.

J. L. QUINN.

ELS: W

[EXHIBIT 4-E-1]

LOS ANGELES — SAN FERNANDO

Following points supplied:

Name.	Distance from substation.	How delivered TW-RR or both.	Differential over substation.
	Miles.		*Cent.*
Castiac	18	ATT	1
Chatsworth	12	"	
Mission Acres	6	TW	
Newhall	10	ATT	
Pacoima	2	TW	
Saugus	13	ATT	
Sylmar	2	"	
Villa Vista	5	"	
Zelzah	7	"	
Boquet Canyon	31	"	1
Mint Canyon	21	"	1
Placerita Canyon	14	"	1
Ridge Route	29	"	1

[EXHIBIT 4-E-1]

Los Angeles, *March 14, 1917.*

List of points supplied by main and sub-stations.

Mr. H. T. Harper:

We have your letter March 5th, by RGR–M, no file number, with which you enclosed a list showing a number of instances where your record does not agree with ours. We have checked this over carefully and are pleased to advise as follows:

LOS ANGELES.—We are charging no advance over Los Angeles prices.

SAULSON.—We are charging no advance over Los Angeles prices.

ANAHEIM.—Your list shows Villa Park under Anaheim, whereas deliveries are being made by tank wagon from our Santa Ana sub-station to that point.

BARSTOW.—Under Barstow you show Hinkley and Yermo as taking ½¢ over Barstow prices, which is correct.

BRAWLEY.—Under Brawley your list shows Rockwood and Bernice. Kindly cancel these two points from your list, as we have no record of them.

COACHELLA.—Martinez should be shown on our list, although at the present time we are not making any deliveries to that point. Government Date Gardens are located at Mecca; West India Gardens at Thermal, and the Cabazon Reservation at Coachella, which points are shown on our list. Augustine and Torres are being supplied by Coachella and should appear on our list.

COLTON.—Under Colton you show Kenbrook. This should be Keenbrook, and deliveries are now being made to this point from our San Bernardino sub-station at an advance of ½¢.

LA BOLSA.—Balboa is now taken care of by Santa Ana. We have no record of Bella Beach, and you will kindly cancel same from your list. East Newport is the same as Newport Beach, and deliveries are being made from our Santa Ana sub-station.

LANCASTER.—We have no record of any such point as Highway being delivered from Lancaster, but we are making deliveries to Lebec at an advance of two cents over Lancaster price.

REDLANDS.—Under Redlands you show Alton and Old Town, which points kindly cancel from your list as they are no longer in existence.

SAN FERNANDO.—You show Castrar, which no doubt should be Castaic, and we are charging an advance of 1¢ over San Fernando price for tank wagon deliveries to that point. Boquet Canyon, Mint Canyon, Placeretia Canyon are all being taken care of by San Fernando, at one cent advance.

SANTA ANA.—Under Santa Ana our list should show Delhi and Myford, which points are being regularly supplied by that station. Gardens is supplied by our Moneta sub-station.

SANTA MONICA.—Under Santa Monica you show Ivy Park and Long Wharf, which points we are adding to our list.

In connection with Neuralia, which is 13½ miles from our Mojave sub-station, it will no doubt be possible to obtain a differential for deliveries to that point, and we will take this matter up at once, advising you later as to the differential which we will be able to secure.

We agree with you that one-half cent advance over San Fernando prices for deliveries along the Ridge Route is not sufficient, and in future we will charge an advance of one cent per gallon.

In accordance with your request, we shall be pleased to keep you fully informed of all changes in points supplied by our stations.

J. L. Quinn.

JIS–N

[Exhibit 4–E–2.]

Los Angeles, *April 21, 1917.*

Subject: List of Points supplied by main and sub stations.

Mr. H. T. Harper:

Supplementing our letter March 14th and referring further to your letter April 10th, R–322–130. Upon further investigation we find that we will no longer be able to secure 1¢ differential to cover tank wagon deliveries from our San Fernando sub-station to Castaic, due to the fact that other companies are

making tank wagon deliveries at their sub-station prices. The distance from San Fernando to this point as reported previously, 18 miles, is incorrect, same being but 16 miles.

It will also be necessary to cancel the 1¢ differential for tank wagon deliveries from San Fernando to Placeretia Canyon, as this point is but 12 miles from our sub-station at San Fernando.

J. L. QUINN.

Cc-Mr. Dockstader.
JIS-N

[EXHIBIT 4-E-3]

R-322-130

SAN FRANCISCO, CAL., *Apr. 26, 1917.*

Subject: List of Points supplied by main and sub-stations.

Mr. J. L. QUINN:

We have your letter of the 21st instant, JIS-N, on the above subject, in which you state that you will no longer be able to secure 1¢ differential at Castaic and Placeretia Canyon served by Tank Wagon from San Fernando.

We infer from your letter that you have already cancelled the differential mentioned, although you do not say whether the differential is now at ½¢ or whether you are charging the San Fernando prices at those points. Please advise on this point.

In this connection we wish to emphasize the ruling that no changes are to be made in market prices except on the authority of this office. Prices established at various places on deliveries by our Tank Wagons or Tank Trucks are essentially market prices, and are subject to the same regulations as prices at the actual point at which we maintain a substation.

In view of the fact that we are now making extensive use of motor equipment and are thereby in position to cover great distances, it is more necessary than ever that the rule to which we are calling your attention be followed in all instances.

H. T. HARPER.

GCM: HE.

[EXHIBIT 4-E-4.]

LOS ANGELES, *May 8, 1917.*

List of Points Supplied by Main and Sub-Stations.

Mr. H. T. HARPER:

With reference to your letter of April 26th, file R-322-130, wish to advise that we would recommend the cancellation of the 1¢ differential covering tank wagon deliveries from our San Fernando sub-station to Castaic and Placerteria Canyon, for the reason indicated in our letter April 21st. We do not feel it will be possible to secure ½¢ differential for deliveries to those points.

We again wish to assure you that changes of this nature will not be put into effect until the matter has been taken up with your office and proper authority secured and we are awaiting such authority to cancel the differentials referred to above.

J. L. QUINN.

JIS-N.

[EXHIBIT 4-E-5.]

R-322-130

SAN FRANCISCO, *May 15, 1917.*

Subject:

List of Points supplied by Main and Sub-stations.

Mr. J. L. QUINN:

Referring to your letter of May 8, JIS-N above subject, in regard to deliveries from the San Fernando, Cal. Sub-station to Castaic and Placerteria

Canyon, wherein you request authority to cancel the differential of 1¢ now being obtained over the Sub-station prices for deliveries to these points.

The distance to be travelled in making deliveries to the points in question, we believe, fully justified our receiving the differential in question and before any further action is taken, we would be pleased to receive your advice relative to the amount of business we are enjoying at each point.

In passing, would like to ask if any attempt has been made to secure the business at the points in question at a differential of ½¢ per gallon.

We await your advice.

H. T. HARPER.

HSM–M

[EXHIBIT 4–E–6]

LOS ANGELES, CAL. *June 21, 1917.*

List of points supplied by Main and Substations.

Mr. H. T. HARPER:

Referring to your letter of the 15th instance on the above subject, file R–522–130.

After a very thorough investigation we can see no reason why we should not obtain ½¢ per gallon above San Fernando prices for deliveries to Castaic and Placerteria Canyon. Such being the case we are changing our records accordingly and henceforth our sales sheets for deliveries for Castaic and Placerteria will bear differential of ½¢ above San Fernando prices.

J. L. QUINN.

HAL–McS

[EXHIBIT 4–E–7]

SAN FRANCISCO, *June 25, 1917.*

Subject:

List of Points supplied by Main and Substations.

Mr. J. L. QUINN:

We have your letter of June 21st, HAL:MCS., above subject: After noting contents we will make record of the differential of ½¢ per gallon to be retained for tank wagon deliveries from San Fernando to Castaic and Placerteria Canyon, 18 and 12 miles, respectively, from the Substation.

H. T. HARPER.

CC Mr. H. K. Fletcher,
(Attention Mr. Haskell)

[EXHIBIT 4–E–8]

INFORMATION REGARDING ASSOCIATION ACTIVITIES.

Question 5. The letter files of the Standard Oil Co. show that the company was promptly informed regarding the various activities of the Independent Petroleum Marketers Association, and was furnished with memoranda covering the discussion and agreements of the association members. A number of the memoranda of these meetings showed that, although not a member, the members of the association understood that the Standard was cooperating with them, as indicated by the following:

Answer. As a consequence of supplying a number of the members of the Independent Petroleum Marketers Association with oil products for resale and for use in their own equipment, the company's representatives frequently met different members of the Association. These members spoke freely of the activities of the Association and the information that the company obtained

In connection with such activities came largely unsolicited and was a matter of more or less common knowledge to the oil trade. Furthermore, the activities of the Independent Petroleum Marketers Association were reported by salesmen and other employees of the company through their contact with garagemen and other dealers who were purchasing from the Independent Petroleum Marketers Association. The information that the Standard Oil Company secured was information that was available to anyone in the oil trade in Los Angeles and as stated, was a matter of more or less common knowledge.

LOS ANGELES CITY BIDS.

Question 5-a. According to memoranda of meetings held December 20, 1916, and January, 1917, the Standard Oil Co. and three other companies were to bid the same prices for gasoline required for the City of Los Angeles for 1917. The bids were submitted by the Standard Oil and other companies on December 22, 1916, (Specification 155) and were identical in price for all companies. These bids were rejected by the city and new bids were requested per Specification 155a. The same companies again submitted identical bids as per agreement, and the city, being unable to obtain competitive bids from the oil companies, the city purchasing agent was instructed to issue regular purchase orders.

Answer. So far as bids to the City of Los Angeles are concerned these followed the regular published prices of Standard Oil Company with one cent off as was the custom of the company in quoting to municipalities. There was no understanding in this regard with any one. Municipalities were in the category with those customers who were allowed one cent off the list price.

The following bids of this company cover all bids made to the City of Los Angeles between the dates shown, are a matter of company record:

Specification No.		
130	June 7, 1916	1¢ per gal. off list price on gasoline
138	June 30, 1916	1¢ " " " " " " "
254	July 7, 1916	1¢ " " " " " " "
257	July 25, 1916	1¢ " " " " " " "
257	July 22, 1916	1¢ " " " " " " "
155	Dec. 22, 1916	1¢ " " " " " " "
155A	Jan. 24, 1917	1¢ " " " " " " "
---	Sept. 18, 1917 to Dept. of Public Service, City of Los Angeles, 1¢ per gallon off.	

There are also attached circular letters to agents regarding quotations to be made to State, Municipal or County authorities as follows:

Letter of July 16, 1914, in which Agents were given authority to bid for certain company products including gasoline, at one cent less than the regular market or list price. (Exhibit 5-A-1.)

Circular letter of September 23, 1914 to Agents withdrawing the authority of July 16, 1914 and providing authority for quotations of 2¢ below the ruling market or list price on Red Crown Gasoline and one cent below ruling market or list price on motor spirits. (Exhibit 5-A-2.)

Letter of February 4, 1915 to all agents withdrawing the authority to bid 2¢ per gallon off the prevailing market or list price for Red Crown gasoline and advising that in future Red Crown gasoline was to be offered at a flat price based at one cent per gallon off the prevailing market or list price on date of proposal. (Exhibit 5-A-3.)

Letter of July 21, 1916 in which the Los Angeles agent asks for authority to bid, because of competitive conditions, 2¢ off the market price for Red Crown gasoline to be supplied the Los Angeles City Aqueduct. (Exhibit 5-A-4.)

Telegram of July 22nd in response to letter of July 21st refusing authority requested and directing the Los Angeles agent to submit Los Angeles Aqueduct bid for Red Crown gasoline according to regular classification on basis of one cent below present market or list price. This referred to Specification 257 and was the company's bid of July 22, 1916, as shown in above list of bids. (Exhibit 5-A-5.)

With particular reference to Specification 155, we enclose copy of letter from the Los Angeles Agent of December 16, 1916, (Exhibit 5-A-6) in which he calls attention to the notice to bidders, copy of telegram of December 19, 1916 to J. L. Quinn, Agent, Los Angeles, from this office (Exhibit 5-A-7) in which Mr. Quinn was advised to wire the approximate requirements of the City of Los Angeles. Copy of Mr. Quinn's reply of December 20, 1916 in which Mr.

Quinn recommends bidding one cent off the prevailing market price (Exhibit 5-A-8) and instructions to Mr. Quinn under date of December 20, 1910, to submit the bid to the City of Los Angeles on the basis of one cent off the ruling market price at time and place of delivery. (Exhibit 5-A-9.) The correspondence as shown carries Mr. Quinn's recommendation to bid one cent under the market but the price was entirely under the control of this office and in instructing Mr. Quinn to bid at a price one cent under the market, the company was following its previous classification practice and policy.

The bids called for by Specification 155-a were prepared in this office and forwarded over the signature of the Vice President and followed the company's policy of one cent per gallon below the prevailing market price at time of delivery. The bid made was on the same basis as bids theretofore and thereafter made by the company.

[EXHIBITS 5-A-1 to 5-A-9 attached.]

SAN FRANCISCO, *July 16, 1914.*

Proposals or quotations—State, Municipal or County Authorities.

ALL AGENCIES (Except Nome)

DEAR SIR: Should you at any time be called upon to submit proposals or quotations to State, Municipal or County authorities, you may consider this letter your authority for making bids for furnishing Refined Oils, Red Crown Gasoline, VM&P Naphtha, and Engine Distillate at prices on the basis of one cent (1¢) less than your regular market price at point of delivery.

Please acknowledge receipt.

Yours truly,

GMS-B

[EXHIBIT 5-A-1]

SAN FRANCISCO, CAL., *Sept. 23, 1914.*

Subject: Red Crown Gasoline to State Departments Counties and Municipalities

DEAR SIR: In future you may make quotations and bids to State Departments, Counties, and Municipalities on the basis of 2¢ below your ruling market price, at time and place of delivery, on Red Crown Gasoline.

Yours truly,

GCM:M

Sent to the following Agents.

Phoenix, Ariz.
Portland, Ore.
Seattle, Wash.
Spokane, Wash.
Tacoma, Wash.
Honolulu, T. H.

[EXHIBIT 5-A-2]

SAN FRANCISCO, CAL., *February 4, 1913.*

R. C. Gasoline Quotation—State Departments, Counties, Municipalities and U. S. Government.

Portland
Seattle
Tacoma
Spokane
Honolulu

San Francisco
Oakland
San Jose
Stockton
Fresno
Sacramento
Phoenix
San Diego
Los Angeles

DEAR SIR: Referring to our letter of September 23rd, 1914, in which you were given permission to quote Red Crown Gasoline on State Department, County and Municipal bids at 2¢ per gallon off the prevailing market price at the time of the proposal.

May we ask that you kindly cancel these instructions, and until further advised on these proposals, offer Red Crown Gasoline at a flat price based on 1¢ per gallon off your prevailing market price on the date of the proposal.

We are referring particularly to requests which you are continually receiving for small quantities, so should you receive requests for prices from any of those mentioned above, which you believe would require special consideration, will ask that you take up the matter with this office before quoting.

These instructions will also cover bids and quotations to the United States Government, which come to you direct, without passing through this office.

Will you kindly advise if this letter is fully understood.

Yours truly,

HTP:P

PS. This will not make any change in the instructions we have issued regarding prices at which to bid on Engine Distillate.

[EXHIBIT 5-A-3]

LOS ANGELES, CAL., *July 21, 1916.*

STANDARD OIL COMPANY

Gasoline—Los Angeles Aqueduct Dept.

Mr. H. T. HARPER:

The Aqueduct Department of the City of Los Angeles is inclined to use Red Crown Gasoline and will tomorrow ask us for quotation.

We are of the opinion that if we make them 2¢ per gallon off our prevailing market price at date of delivery on Red Crown Gasoline that we can secure all of their business for the balance of the year, which is approximately 15,000 gallons per month.

All of the competing companies have made quotations to them of 2¢ to 3¢ per gallon off market price, and one company, the Rancho La Brea Oil Co. quoted them 4¢ per gallon off.

Upon receipt of this letter will you kindly advise me by wire if we may quote them 2¢ per gallon off our prevailing market price at date of delivery.

This quotation must be given to the Purchasing Agent of the Aqueduct to-morrow morning. He is very friendly to us, and this is the only opportunity we have had to secure this business for some time.

J. L. QUINN.

JLQ:D

[EXHIBIT 5-A-4]

SAN FRANCISCO, *July 22, 1916.*

J. L. QUINN
Los Angeles, Cal.

Referring to your letter July 21. Submit bid Los Angeles Aqueduct Red Crown Gasoline at flat price on basis of one cent below our present market price.

H. T. HARPER.

GCM:M

[EXHIBIT 5-A-5]

STANDARD OIL COMPANY

LOS ANGELES, CAL., *Dec. 16, 1916.*

City of Los Angeles Specifications No. 155

Mr. H. T. HARPER:

Attached please find City of Los Angeles Specifications No. 155, which l notice to bidders for the requirements of the City on Petroleum Products fo the year 1917.

These specifications are identical with specifications No. 61, which were used in awarding the business of 1916, with which we are all quite familiar. Will you kindly fill out the attached notice and mail to us so that it will arrive here early enough to be presented on December 22, 1916.

JLQ:D J. L. QUINN.

[EXHIBIT 5-A-6]

SAN FRANCISCO, *December 19, 1916.*

Mr. J. L. QUINN,
Standard Oil Company, Los Angeles, Calif.

Your letter December sixteenth advise by wire approximate monthly requirements of City of Los Angeles on products covered by proposal to be submitted December twenty second.

HSM-801 H. T. HARPER.

[EXHIBIT 5-A-7]

Specification No. 155

LOS ANGELES, *Dec. 20, 1916.*

H. T. HARPER
Sn.

The city's yearly requirements as follows: Two hundred thousand gallons gasoline; twenty-five thousand gallons distillate; five thousand gallons coal oil. Would recommend bidding 1 cent off the prevailing market price at date of delivery on all three products. Will you kindly get this bid in tonight's mail.

J. L. QUINN.

[EXHIBIT 5-A-8]

Specification No. 155

SAN FRANCISCO, *Dec. 20, 1916.*

J. L. QUINN, *Los Angeles.*

Your wire date. Procure proposal blanks and submit bid to City of Los Angeles as District Sales Manager. Unable mail bid from this office in time. Basis one cent off ruling market price at time and place of delivery. Stipulate maximum quantity Gasoline Distillate, Pearl Oil to be furnished not to exceed amounts quoted by you.

H. T. HARPER.

HSM:M 5.05 P. M.

[EXHIBIT 5-A-9]

EL MONTE ROAD FIVE MILE HOUSE PRICES.

Question 5-b. A memorandum of a meeting held January 17, 1917, stated that since the El Monte Road Five Mile House was now displaying a 20 cent sign the Standard Oil Co. and other companies would start in and clear up price cutting in Alhambra, South Pasadena and Pasadena.

Answer. The El Monte 5 Mile Road House service station situated on the El Monte Road, was within the Los Angeles District and took this company's Los Angeles City prices. This station generally sold at a price below the price quoted by this company and purchased from the company for a short time, but

competing companies offered better prices and this company lost the business. During this period Alhambra, South Pasadena and Pasadena were supplied from the company's Pasadena substations and prices at these stations have been based at all times since early in 1916, on the El Segundo Refinery price.

With the exception of an increase of one-half cent per gallon in gasoline, which was ordered in 1918 by the Federal Fuel Administration to absorb the general freight increase throughout the country, the companys' price for gasoline remained unchanged from December 2, 1916 to June 10, 1919.

The company denies that it was in any way concerned in any agreement with reference to prices in the sections above mentioned.

LOS ANGELES MARKET CONDITIONS.

Question 5-c. That there were indications of a threat in the letter from Mr. W. S. Miller to J. L. Quinn, dated August 15, 1918, in which Mr. Miller stated that the Independent Marketers Association "could without doubt clear up the situation," referring to the unfavorable market conditions in Los Angeles. Continuing Mr. Miller said: "I do not think it would be advisable to take this up with the Association, but if you should happen to meet one of them, you might talk to him about it."

Answer: Referring to Paragraph 5-c—Mr. W. S. Miller's letter August 15, 1918 to J. L. Quinn, Los Angeles.

During the war period Standard Oil Company was under the control of the Federal Fuel Administration and during this control the company's position was that it wou'd make no change in prices unless so directed and authorized by the Fuel Administration.

May 1, 1918. At the request of the Fuel Administration under the direction of Mr. J. [M.] L. Requa, the company advanced its paying price for crude oil 25¢ per barrel and at the same time and at the same direction, advanced its asking price for fuel oil at tide water, 15¢ a barrel. Also, at the same time, the Fuel Administration authorized an increase in the price of gasoline of 2¢ a gallon. The company did not feel that the conditions at the time mentioned warranted an increase in gasoline prices as it was believed that there was ample stock of gasoline on hand to meet the seasonal requirements. The company's base price therefore, for gasoline of 20¢ per gallon was not changed and remained unchanged from December 2, 1916 to June 10, 1919. It was the company's understanding with the representatives of the Fuel Administration that prices established by the Administration were to remain unchanged except on approval of the Fuel Administration.

Mr. Miller's suggestion to Mr. Quinn therefore was prompted solely by the fact that if the prices at which the company was selling its product, which had the approval of the Fuel Administration and which the company could not change without the approval of the Fuel Administration, were prices not to be accepted by the company's competitors, then the company was warranted in seeking the Fuel Administration and requesting authority to lower its prices in order to meet competition. On the other hand a reduction in the price of gasoline, undoubtedly would have affected crude oil prices and would have defeated the very purpose of the Fuel Administration which was endeavoring to increase production in order to meet war demands.

Just prior to the correspondence in question, namely in June, 1918, two of the chief competitors of this company raised their prices for gasoline. The change was not countenanced by the Fuel Administration and immediately thereafter, on request of the Fuel Administration, the companies in question reduced their prices to the old level.

The whole matter was one of war conditions which Mr. Miller wished to see rectified without the necessity of invoking the aid of the Federal Fuel Administration and without the necessity of asking for a reduction in gasoline prices which would defeat the object of the Fuel Administration to stimulate production.

PRICE AGREEMENTS IN MAY, 1919.

Question 5-d. That the home office of the Standard Oil Co. was informed of the Association's agreement (before it became effective May 5, 1919) which covered the prices to be charged for gasoline, and engine distillate and listed "the names of 20 peddlers entitled to a differential from the retail price. A memorandum of a supplementary agreement, dated May 8, 1919, specifically mentioned the Standard Oil Co. as one of the companies which would carry out the provisions of the agreements.

Answer: In reply the company repeats the answer made to Question 5 with respect to knowledge of the activities of the Independent Petroleum Marketers Association. The information in this particular case came to the company unsolicited and was passed along to the General Office as a matter of information only. It in no way affected the company's prices or its policies. The company's prices continued to be the El Segundo Refinery base price. The company's prices compared with the prices established by the Petroleum Marketers Association show that the company was selling to the automobile owner at list price, while the Independent Petroleum Marketers Association was allowing a discount of 5% on all coupon book sales. The company's price to peddlers was 2¢ off per gallon on gasoline and 1¢ off per gallon on engine distillate, or 18½¢ and 12½¢ respectively, while the Independent Petroleum Marketers Association price was 17½¢ for gasoline and 12¢ for distillate to peddlers. Also the Independent Petroleum Marketers Association fixed a price on tank car deliveries on gasoline of 3¢ per gallon off the prevailing market price on date of delivery and 1½¢ per gallon off on engine distillate, while the company's price on tank car deliveries was 2¢ off the market price on gasoline and 1¢ per gallon off on engine distillate. (See circular letter of September 1918 to all District Sales Managers from the General Office, Exhibit 5–A–1).

[Exhibit 5–D–1 attached.]

San Francisco, *Sept. 16, 191*

p–4–Cir. Prices Tank Car Sales.

All D. S. M.

With reference to the present schedule of prices on tank car deliveries.

On receipt of this letter please make prices on tank car sales of Refined Red Crown Gasoline and Engine Distillate as follows:

Refined Oil	½¢ per gallon below our full market price at time and place of shipment.
Red Crown Gasoline	2¢ per gallon below our full market price at time and place of shipment.
Engine Distillate	1¢ per gallon below our full market price at time and place of shipment.

In making sales and rendering invoices, these price differentials must be observed, regardless of the trade or business in which the customer is engaged.

Please understand the differentials specified apply to tank car shipments only.

Kindly acknowledge receipt.

H. T. Harpe

CC Mr. Monroe
McCord
Sutter
GCM: TS

[Exhibit 5–D–1.]

GASOLINE PRICES, APRIL, 1920.

Question 5–e. That early in April 1920, the Standard Oil Co. recommended that the Independents increase the price of gasoline; and that the Los Angeles representatives on April 9, 1920, "definitely asks if it is not possible Independents take such action."

Answer: The company denies that it made any recommendations direct or indirectly, to the Independents with reference to increasing the price of gasoline in April 1920, or at any other time. Furthermore, the company asserts that it has no understanding with any competitor with reference to the price of gasoline or price of any other product. The company's representative in Los Angeles in April, 1920, states that no inquiry of the kind quoted, was made by him.

COMMISSIONER'S LETTER IN RE KINGMAN AND WATER COMPANIES CASES.

FEDERAL TRADE COMMISSION
Washington, D. C. October 6, 1921.

MY DEAR MR. KINGSBURY:

Your letter of September 28, 1921, replying to the Commission's letter and memorandum of August 26th, has been received. Your courtesy in furnishing the information contained therein is greatly appreciated and the difficulty of assembling the data necessary to explain same transactions is fully recognized.

Referring to your answer to question 2, it is apparent that your records did not disclose all of the activities of your agents regarding the conferences held with representatives of your principal competitor at Kingman, Arizona. It appears that several conferences were held and that on or about November 1, 1915 your Mr. Harlan met with a representative of your principal competitor at Kingman and "assured him that prices would be maintained and sold at schedule", and on or about December 1, 1915, your Mr. Balsley promised "to line up with your competitor on the Kingman prices inside of ten days".

Referring to your reply to question 3a, the Commission's information is to the effect that the question of the differentials to water companies in the Imperial Valley "had been discussed from every angle" by your Los Angeles agent and your principal competitor who had "agreed that all the water companies in the Imperial Valley are entitled to 1 cent on gasoline and ½ cent off on distillate", and that on or about May 27, 1916, instructions were sent to your representative in the Imperial Valley that his quotation of 2 cents off on gasoline to water companies No. 1, 5, 7, and 8, must be withdrawn immediately and that future sales should be on the basis of 1 cent off on gasoline and ½ cent on engine distillate.

Cordially yours,

Chairman.

K. R. KINGSBURY, Pres. Standard Oil Company,
Standard Oil Building, San Francisco, California.

SUPPLEMENTARY STATEMENT ON KINGMAN AND WATER COMPANIES CASES.

K. R. KINGSBURY, *President.*

STANDARD OIL COMPANY
San Francisco, Cal. October 18, 1921.

MY DEAR MR. THOMPSON:

Replying to your letter of October 6th:

In the particular cases to which you refer; first the Kingman matter (Your Question #2), the record submitted by the company in its reply of September 28th to the Commission, shows conclusively that with the exception of the price reduction of July 1, 1915, which was made to meet competitive conditions, the Kingman prices followed the El Segundo base prices. Mr. Balsley and Mr. Ferguson, then the Company's Manager and Assistant Manager respectively in Arizona, and Mr. Harlan, then the Company's agent at Kingman, emphatically deny any understanding or agreement at any time regarding prices with a representative of the company's chief competitor or with any competitor. That there was no understanding reached is corroborated by the fact that there was no resultant effect of such an understanding.

Second. With reference to your Question 3-a and the statement in your letter of October 6th that an understanding was reached which resulted on or about May 27, 1916, in the withdrawal of certain special prices to Imperial Water Companies and the establishment of prices through understanding with competitor of one cent off on gasoline and one half cent off on engine distillate. As we have stated before, we are unable to find any record of prices during May, 1916, but our records do establish that in the month immediately following, June 1916, our prices to Imperial Water Companies were two cents off on gasoline and one cent off on engine distillate. Our then manager of this district, Mr. J. L. Quinn, strenuously denies that he at this time or at any time, arrived at an understanding with our chief competitor or with any competitor as to prices, and again the denial is corroborated by the fact that the result of any such understanding is found wanting in the prices prevailing within thirty days of the alleged understanding.

The Standard Oil Company is not responsible for the unauthorized statements of its hundreds of agents and obviously not for the statements of the agents of competitor companies. The company's policy with respect to prices is firmly and definitely fixed. It cannot control the activities of its agents further than to use every endeavor to enforce from them as it always has done, strict compliance with the principles of the company in respect to price matters.

The company has not had and has not now any communications written or verbal, with competitors on the subject of prices. It has not made and makes no agreements or understandings of any kind, on the subject. Prices for its commodities are established by the Directors at the home office in San Francisco. The Directors know of no better safeguard in this respect than to retain complete control of the establishment of prices for the company's products and to leave none of it in the hands of agents. In that way the Directors believe that violation of the law in this respect will become impossible without their knowledge and with their knowledge none has been or will be permitted.

We submit that the instances gathered from the company's files covering a period of the last seven years, disclose no instance of price increase pursuant to agreements with competitors so that whatever talk or statements by agents may have occurred, these have been idle and without result so far as the company has been concerned, as indeed they were without authority.

If, after consideration of the facts herein, together with the facts contained in our letter of September 28th, there is any doubt in your mind as to our good faith and integrity I will be glad to come to Washington, if you so desire, as soon as it is possible for me to leave here, provided the threatened Railroad strike does not intervene.

Sincerely yours,

(signed) K. R. KINGSBURY.

Hon. HUSTON THOMPSON, Chairman,
Federal Trade Commission, Washington, D. C.

EXHIBIT 3.

ANSWER OF ASSOCIATED OIL CO.

PAUL SHOUP, *President.*

ASSOCIATED OIL COMPANY,
San Francisco, October 19, 1921.

Mr. HUSTON THOMPSON, Chairman,
Federal Trade Commission, Washington, D. C.

DEAR SIR: With reference to your telegram of September 24th and your letter of August 26th inviting an explanation of certain facts regarding competitive conditions disclosed by correspondence of oil companies in California and my telegram to you of September 29th, in the same matter:

Neither myself nor any of the executive officers of the Associated Oil Company have any personal knowledge whatsoever of the matters mentioned in your letter. We have carefully examined our correspondence files and find that they disclose nothing whatsoever relating to the matter. I have communicated with our present District Agent at Portland, Oregon, who was in charge of our Agency at Oxnard during the time when the incidents mentioned by you are alleged to have occurred, and he states very positively that such changes in discounts as were made at that time were made solely on his own motion and without consultation with or suggestion from anyone else.

If there is any further information we can give you with respect to this matter, please command us.

Yours truly,

(signed) PAUL SHOUP.

EXHIBIT 4.

ANSWER OF INDEPENDENT PETROLEUM MARKETERS ASSOCIATION.

SECRETARY OF ASSOCIATION'S LETTER TO COMMISSION.

INDEPENDENT PETROLEUM MARKETERS ASSOCIATION OF CALIFORNIA (INC.), 930-31 MARSH-STRONG BLDG.

LOS ANGELES, CAL., September 20, 1921.

Mr. NELSON V. GASKILL,
Chairman Federal Trade Commission, Washington, D. C.

DEAR SIR: Further replying to your request of recent date and concerning memoranda submitted as to activities of the Independent Petroleum Marketers' Association, beg to say that in the year 1915, the Independent Petroleum Marketers Association found it necessary to associate themselves together for the purpose of protecting themselves against a competition which meant their ruin, and at that time it appeared to them that it was necessary to stabilize the business in this vicinity or the "Independents" would be entirely eliminated from the field. It was a long and hard struggle, and it was only through the cooperation and assistance rendered by frequent meeting and exchange of views, that the Independent marketers of gasoline and oil products have survived the days of ruinous competition. It may be that in the early history of the Association things were done that, in view of subsequent Federal and State Regulations, would be subject to criticism. There has not been for a number of years, any attempt made at price fixing or any acts done tending to create a monopoly of the business or fix prices.

We are not cognisant of any acts on the part of the members of the Association which in any way affect interstate commerce, or had any bearing upon the industry other than in the city of Los Angeles and its environs.

The above statements also apply to the activities of the California Petroleum Exchange which was simply a marketing organization for our members.

It is the desire of this Association and all of its members to comply with every Federal and State regulation having to do with our business and if there is any specific instance where it would appear that we have been engaged in interstate commerce in any form or fashion, we will be glad to comment on or explain the matter.

I beg to remain

Very truly yours,

(Signed) H. H. MAXSON, *Secretary*,
INDEPENDENT PETROLEUM MARKETERS ASSN. OF CAL.

HHM:F

REPORT OF HEARING BEFORE THE COMMISSION OF THE SECRETARY OF THE INDEPENDENT PETROLEUM MARKETERS' ASSOCIATION WITH RESPECT TO COMPETITIVE CONDITIONS DISCLOSED BY THE COMMISSION'S INQUIRY INTO THE CALIFORNIA OIL INDUSTRY.

OCTOBER 7, 1921, 2:30 P. M.

Before Commissioners Huston Thompson, Nelson B. Gaskill, Victor Murdock, John F. Nugent.

Appearances: Dr. Francis Walker and Wm. H. England, for the Commission.
H. H. Maxson, Secy. and Mgr., Independent Petroleum Marketers' Ass'n; Carl Hutchins Richmond, for the I. P. M. Ass'n.

Mr. THOMPSON. The meeting today is for the purpose of hearing from Mr. H. H. Maxson, Secretary of the Independent Petroleum Marketers' Ass'n, in respect to an investigation that was made under the Poindexter Resolution, being Senate Resolution No. 139, calling upon the Federal Trade Commission to make an investigation of the oil situation upon the Pacific Coast. Notice has been sent to the Standard Oil Company of California.

Dr. WALKER. Various oil companies.

Mr. THOMPSON. Various oil companies in California.

Dr. WALKER. Standard Oil Company of California, Union Oil Company, Associated Oil Company, Independent Petroleum Marketers' Ass'n and the Exchange.

Mr. THOMPSON. Will you state the companies from whom we have had responses?

Mr. ENGLAND. All of the companies here sent a response. In the case of the Standard, I assume from their answer that they probably will send more supplementary information, because there are a couple of points on which they say their examination has not been completed; but the other answers are complete.

By Mr. THOMPSON. Mr. MAXSON, have you had submitted to you a series of questions to be propounded today?

Mr. MAXSON. I have your letter of the 26th of August, summarizing two letters in which you have referred to correspondence between myself and certain members of the Association, and certain memoranda, rough memoranda, which are in the files.

Mr. THOMPSON. Dr. Walker, you have a statement which you have submitted to each one of the members of the Commission, consisting of a series of paragraphs, 15 in number, I believe.

Dr. WALKER. Yes, this was prepared and transmitted, as I understand, and as Mr. Maxson just said, in the letter referred to, for his information as to the points which it seemed important to the Commission he should answer, and give any information other than that which appeared to be justified by a perusal of the correspondence and memoranda, set down briefly in this memorandum.

Mr. THOMPSON. I think we had better take this up in order and propound the questions.

Dr. WALKER. Each paragraph contains a statement of what the correspondence, etc., appears to indicate, and if that appearance was not justified by the facts, it was thought that Mr. Maxson could give us any further necessary explanation, and as I understand, you want me now to read each one of those statements seriatim. If you want me to add any explanation, I will do it.

Mr. THOMPSON. We will proceed with the first.

Mr. ENGLAND. Quite a number of the memoranda are practically the same. I have had copies made of the important letters, and copies have been handed to the Chairman and Mr. Maxson so that they can refer to them.

Mr. MAXSON. This wire of yours came at a time when our attorney was away. All of the correspondence had been placed in his hands, and I am handicapped to the extent that I haven't the correspondence to refer to. I asked Mr. England to make copies of the particular ones referred to here.

Mr. WALKER. (Paragraph 1 of memorandum read as follows:)

"The members of the Independent Petroleum Marketers' Association agreed to adjust all price 'differentials to precisely the same basis throughout your list of customers' and that 'all market changes' should 'take place simultaneously.' (See letter sent to all members of the Association Sept. 22, 1915.)"

Mr. MAXSON. As far as I know, gentlemen, that letter is probably a copy of the original; but I have no defense to make. It was back in 1915, and in accordance with a letter recently written, that in the past certain things have been done that were probably not strictly in accordance with the law. I don't know whether they were or not; but the developments in recent years would seem to indicate that that is true. We have gotten away from that altogether. Our organization is purely a business men's organization, as is other lines of business, for the purpose of securing information and disseminating it among our members for the good of their business, the promotion of more efficient marketing, and the defense of the industry in different ways, such as adverse legislation, false publicity, and various other ways in which the organization is attacked. We believe that cooperation is to our best interests in many ways; but always it is our aim to keep very rigidly within the law.

Mr. GARFIELD. Do you know when the practice manifested by this letter of the 22nd of September, 1915, was abandoned?

Mr. MAXSON. Well I think since 1917, as far back as I remember; I don't think you will find anything subsequent to that date that will have a tinge of any exception to the rule.

Mr. THOMPSON. Were you secretary of the Association in 1915?

Mr. MAXSON. Yes; I assumed that office in July, 1915.

Mr. ENGLAND. There is one suggestion I have to make. Mr. Maxson stopped in my office a little while, and he referred to conditions at the time of the organization of this association, and I thought probably he would take that up this afternoon. I think it would be well if he would give us something of the conditions just at the time this association was organized, and the reason this letter was written. This was the first agreement that we found after the

association was organized practically a year before that. I think it was organized in November, 1914.

Mr. MAXSON. It was incorporated in February, 1915. I might read this letter that I wrote to Mr. Gaskill recently in response to his letter, though you have it in your files.

Mr. GASKILL. It was circulated and is a part of the general knowledge of the Commission.

Mr. MAXSON. You understand that in the early years of the existence of the association, due to the chaotic conditions, what you call cut-throat competition existed and threatened the very existence of the Independent refiners in that field; in fact, two plants went out of existence at that time. There were others that barely survived and have been able to remain in business.

Mr. NUGENT. What meaning do you intend to convey by the word "Independent"?

Mr. MAXSON. There is only one meaning, and that is, the Standard Oil Company is not eligible to membership. Anyone that is a competitor of the Standard Oil Company is, anyone outside of the Standard Oil Company of California.

Mr. THOMPSON. If you don't wish to make any further statements, proceed with the second paragraph.

(Second paragraph read by Dr. Walker, as follows)

"The members of the Independent Petroleum Marketers' Association met on September 21, 1916, and agreed that the wholesale price of engine distillate should be 8 1/2 cents per gallon or 1 cent below the current retail price; and that the wholesale price of gasoline should be 17 cents per gallon or 2 cents below the current retail price. All members were directed to furnish the Secretary of the Association with names of customers holding contracts for these products at prices differing from the above, and it was agreed that prices to such customers should be adjusted to agreed prices on the expiration of the contracts. The members were also to 'immediately furnish the secretary of the Association with the names of all retailers they now supply who are advertising and selling gasoline at less than the retail market.' (See memorandum of Association meeting September 21, 1916.)"

Mr. MAXSON. That is explained in this way: There was a differential given to the resellers of gasoline and engine distillate at that time (engine distillate not being on the market three years ago) which barely guarantees a profit to the reseller of those products, in one case a cent and the others two cents to the independent resellers of those products. Our people being refiners and marketers, in many instances sell to the retail trade; in other instances retailing themselves, that spot-lights the differential to resellers.

Mr. GASKILL. Tending to price uniformity?

Mr. MAXSON. That is a matter for each individual company to decide, and it was decided individually. Each and every company had their own prices and their own differentials.

Mr. THOMPSON. Didn't they make this agreement at this meeting on September 21, 1916? This memorandum says they met at that time and agreed that the wholesale price of engine distillate should be certain figures.

Mr. MAXSON. Well, whether they met or not, it would have been a matter that they would have determined themselves very likely. The meetings of the Association are never binding upon any member of the organization. They go back to their own offices and do as they see fit to do. It seems to be implied that these agreements are written and very rigidly enforced, but as a matter of fact, there is no agreement in the ordinary sense of the word made at any meeting.

Mr. NUGENT. Written?

Mr. MAXSON. No.

Mr. GASKILL. A common understanding?

Mr. MAXSON. There may have been a common understanding.

Mr. NUGENT. Generally speaking, when there is a common understanding, is that abided by by the members of the Association?

Mr. MAXSON. Very seldom, practically never, as the result of such meeting.

Mr. THOMPSON. I would think, after such experiences they would have learned that the meetings were useless and would have discontinued them.

Mr. MAXSON. There are other benefits to be derived aside from that feature. The information referred to is the means by which they fix their prices, more or less, together with such investigations as they themselves may make.

Mr. GASKILL. This was intended to operate as a uniform price, wasn't it?

Mr. MAXSON. Yes.

Mr. GASKILL. Precisely as your agreements with reference to pumps and tanks and distribution to the retail trade was intended to be uniform?

Mr. MAXSON. Pumps and tanks yes, because we consider that unfair competition in so far as pumps and tanks were given as an inducement to take some of our gasoline or oil. Through our efforts I think that has been largely eliminated out there.

Mr. THOMPSON. Proceed with Paragraph 3.

(Paragraph 3 read by Dr. Walker as follows:)

"As a result of the action taken at the meeting of Sept. 21, 1916, all wholesale quotations of gasoline at 16 cents vanished on October 1, 1916, except contract sales, and the secretary of the Association had a complete list of all such contracts. (See memorandum of Association meeting of October 4, 1916.)"

Mr. ENGLAND. I think that was a long one. We didn't get time to have that copied.

Mr. MAXSON. Without having a copy to refresh my memory, I am not sufficiently conversant with it to say what that is all about.

Mr. THOMPSON. Have we a copy here?

Mr. ARNOLD. I have one.

Mr. ENGLAND. This is a memorandum of meeting of October 4, 1916. The second paragraph says that the Wilshire and Richfield Oil Companies are submitting lists of their contracts to Mr. Maxson, who will have a complete record on the 16 cent price. All 16 cent price quotations vanished on October 1st, except the bona fide contracts of the Wilshire and Richfield Oil Companies. One of the principal distributors in the South Broadway district is the Broadway Auto Company, Mr. Lucklighter, who has a 16 cent contract with the Richfield Oil Company which expires in August of 1917. He sells gasoline at from 17 to 17½ cents.

Mr. THOMPSON. You have refreshed your memory now, have you Mr. Maxson?

Mr. MAXSON. Yes. Well, that Lucklighter incident I think I can explain in this way: The retail marketers had a price of 19 cents.

Mr. ENGLAND. You mean the Standard Oil's price, plus 2 cents for distribution?

Mr. MAXSON. The Standard Oil's retail price for gasoline—19 cents. Mr. Lucklighter had an accessory house. His principal business was automobile accessories, and gasoline was purely incidental to his business. He had one of these gasoline buckets on his curb, where he sold gasoline at cost, practically at cost, 2 cents under the retail price mentioned here. Within a block of him are two other service stations. Independent products fellows, that are depending for their livelihood upon the business of those stations, to whom the 2 cent profit on gasoline meant either their rise or fall. Mr. Lucklighter's persistence in selling gasoline at cost came very near resulting in the going out of business of both of the other service stations. What was done by the refiners was done in protection of the competitors of this man Lucklighter, in an effort to persuade him to sell his gasoline at the market price, or at a profit to himself whether at the market price or not.

Mr. THOMPSON. All right, Dr. Walker.

(Paragraph 4 read by Dr. Walker, as follows:)

"During the latter part of September, 1916, lists of all resellers of gasoline in Los Angeles and vicinity who were selling 'under the market price of 19 cents' were sent in to the secretary of the Association, who reported at the meeting of October 25, 1916, that 'practically half of the 69 18-cent signs have been eliminated since the 1st of October.' (See memorandum of Association meeting of Oct. 25, 1916.)"

Mr. MAXSON. Well, I don't take credit for so much good work, half of the 69 18-cent signs. That was as much the result of the individual oil companies, who evidently succeeded in persuading their customers that they were not making a living on less than 2 cents a gallon on gasoline.

Mr. GASKILL. Was that action by the individual companies in pursuance of, or in accordance with, a common understanding they reached at an association meeting, with reference to the non-profitable sale of gasoline at 18 cents?

Mr. MAXSON. It was probably the result of information they secured, but not an agreement to do so.

Mr. GASKILL. Do you remember whether it was discussed at any meeting?

Mr. MAXSON. I believe it was at an informal session.

Mr. GASKILL. And a consensus of opinion reached?

Mr. MAXSON. That is hard to say. No vote was taken—purely informal meetings following formal sessions, sometimes in other offices, sometimes in my office, sometimes on the street, or elsewhere.

Mr. NUGENT. Was that the opinion that was generally entertained by the oil companies?

Mr. MAXSON. Yes.

Mr. NUGENT. You think it was due to their interest that about half of the 69 retailers increased the price of gasoline, because they had been persuaded that they could not make a profit at 2 cents below the market?

Mr. MAXSON. Yes.

Dr. WALKER. These retailers who had 18-cent signs had been selling one cent below the standard market?

Mr. MAXSON. Yes.

Dr. WALKER. One cent margin?

Mr. MAXSON. Probably so; but any concern selling only 150 gallons a day could not exist on one cent.

Dr. WALKER. Some one like the Lucklighter people with other business could.

Mr. MAXSON. Possibly.

Mr. NUGENT. Then, Mr. Maxson, as I understand it, the contracts referred to meant that some of the refiners had agreed to furnish certain stations with gasoline at a certain price covering a certain product. Now if the price went up, they still sold it at 16 cents under the contract?

Mr. MAXSON. Yes.

Mr. NUGENT. Now a man could sell at 18 with 2 cents margin and be one cent under the retail price?

Mr. MAXSON. If he had a contract at 16 cents, he would be making a 2 cent profit at 18 cents, or one cent under the market.

Mr. NUGENT. How long had that situation prevailed, Mr. Maxson, the sale by the retailers two cents below the standard price?

Mr. MAXSON. In this case it was but one cent below the Standard price. I don't quite understand. I can express the thing in a general way. When this condition existed in 1915, the range of prices of gasoline in Los Angeles was all the way from 12 to 20 cents. Subsequently the range has been decreased, until today it is not over 3 cents, though competition is as keen as ever.

Mr. NUGENT. The matter running through my mind is why, if the retailers themselves were satisfied to sell at the prices at which they did sell, the refiners should be so solicitous of the welfare of the retailers that they should induce them to believe that they were not making a profit by selling below the standard price.

Mr. MAXSON. That was due to the fact that there were other stations, and they would have been forced out of business.

Mr. NUGENT. How long had these retailers referred to been selling at the price they were selling at, prior to the time the refiners induced them to believe they were not making sufficient profit?

Mr. MAXSON. Some for months; some for days. The condition still exists to some extent.

Mr. NUGENT. Why did the refiners endeavor to induce the retailers to believe they were not making sufficient profit at the price at which they had been selling?

Mr. MAXSON. They were our customers. We were interested in seeing that our customers succeeded. Taking into account their overhead costs, we thought it was to our interest to see to their interests to the extent of promoting more efficient business relations.

Mr. THOMPSON. Suppose, however, one of these concerns was in another business, and just did this as a side line or to draw people to their place of business; how could you figure it would be necessary for them to raise the price in order to be successful?

Mr. MAXSON. So far as that individual himself was concerned?

Mr. THOMPSON. Yes. You must have had cases like this, as a side line, as a means of drawing people to their stores.

Mr. MAXSON. From the total profits of his business he could sell gasoline at less than cost and still have a limited profit; but while he was a success in the automobile business, he was driving others out of business who were depending on their gasoline and oil business solely.

Mr. ENGLAND. Lucklighter was one of the cases Mr. Thompson was referring to.

(Paragraph 5 read by Dr. Walker, as follows:)

"On Jan. 5, 1917, members of the Association were directed (effective Jan. 15, 1917) to:

1. Refuse to sell gasoline to any customer who will not display the retail market price.

2. Furnish no peddler who will resell at a greater differential than 2¢ or who permits the retailer to display signs under the retail prices.

3. Not renew contracts except at 2¢ below the current market price at date of delivery.

(See memorandum mailed to members Jan. 5, 1917.)"

Mr. MAXSON. That was really a memorandum of mine, for my reference, but was never executed; to the best of my belief it was not executed.

Mr. THOMPSON. In other words, it was not sent out to any one; is that the idea?

Mr. MAXSON. Yes. Copies were sent out merely as information, but not with any obligation to execute.

Mr. GASKILL. On what impulse was it sent out; what was the moving cause?

Mr. MAXSON. It was with the idea of stabilizing conditions to some extent.

Mr. GASKILL. Did you consult with any one before sending it out?

Mr. MAXSON. No; I believe not. That was four years ago or more.

Dr. WALKER. What does "directed" mean there?

Mr. MAXSON. That is in your letter, not in my memorandum. I think that is a phrase in your memorandum; that doesn't appear here.

Mr. THOMPSON. Do you know whether, after you sent this out, any of them were not abiding by these directions or suggestions?

Mr. MAXSON. I can't specify any instance; but I am satisfied it was considered a memorandum to follow or not as they saw fit.

Mr. NUGENT. What is the scope of your authority?

Mr. MAXSON. I have been very particular ever since I have been in this position. I have had as little authority as any man could possibly have—authority from the standpoint of issuing bulletins that meant they should abide by them. My position is purely a clearing-house for information on the condition of stocks or credits, or anything else of value to our members, from which information they can govern their own business as they see fit.

Mr. NUGENT. In sending out the memoranda you act entirely on your own initiative, without instructions from your Association officers?

Mr. MAXSON. Yes.

Mr. NUGENT. Without having been authorized by any meeting of the officers?

Mr. MAXSON. That is true.

Mr. THOMPSON. Was there any objection at any time afterwards by the Board of Directors or other officers to your having sent this out?

Mr. MAXSON. I recall no objection.

Mr. NUGENT. Do you know whether or not the members of the Association to whom you sent the memorandum acted on the suggestions contained in it?

Mr. MAXSON. I could not say four years later. I can't remember whether they did or not.

Mr. NUGENT. Was the matter contained in that memorandum ever again brought to your attention in any meeting—I mean that particular memorandum?

Mr. MAXSON. Only the subject-matter; not that particular memorandum.

Mr. NUGENT. Was any objection made by anybody to your sending out those directions or instructions?

Mr. MAXSON. No.

Mr. GASKILL. Was any statement made that it had not been carried out at any subsequent time?

Mr. MAXSON. Yes; statements made; in fact, this was noticeable in the signs themselves.

Mr. GASKILL. Any complaints made that members had not carried out the memorandum?

Mr. MAXSON. No serious complaints.

Mr. GASKILL. Any statements calling attention to a better compliance with it?

Mr. MAXSON. Occasionally some one.

Mr. GASKILL. Who would call them to account about it?

Mr. MAXSON. I used to myself try to occasionally, especially where the quality was considered better by the consuming public.

Mr. MURDOCK. There is included in this memorandum I have, but not in Dr. Walker's, a fourth instruction—

"Any retailer who elects to haul his own or associates' gasoline will be charged the regular 2¢ differential at refiners' tanks."

Does that mean that if I was selling gasoline and wanted to get gasoline at a lower price I could do so by going to the refinery?

Mr. MAXSON. These little plants haven't facilities for handling any more than they can with their own equipment, and are not ordinarily encouraged to purchase equipment required in coming to the refineries. You know the rules and regulations cover that. Some outsider might come in there with a tank wagon, and in some way it might cause a fire or explosion, from static electricity, for instance, as we have had it happen from that very cause; though at the present time, where there are facilities for having outside equipment, they may come to the plant and secure gasoline at the cost price, which is 2 cents, sometimes 8 cents, under the retail market.

Mr. MURDOCK. Your answer doesn't satisfy me; I don't know whether you can or not. It is one thing for a refiner to prohibit the visit of a tank wagon to his establishment to prevent fire; it is quite another thing to instruct him that if he does come he must pay a certain price at the plant. What I want to get at is, what is the reason, if a retailer went to that plant, fire or no fire, why was he charged that particular differential?

Mr. MAXSON. We deliver it to his station any time he wants it.

Mr. MURDOCK. It was simply a deterrent to keep him from coming there to the plant?

Mr. MAXSON. Yes.

(Paragraph 6 read by Dr. Walker, as follows):

"On Jan. 10, 1917, it was 'agreed that none of the members (of the Association) would take on the Five Mile House on El Monte Road, unless they displayed a 20¢ sign and that should any similar case arise in the future, drastic action would be taken to bring them into line.'

(See memorandum of Association meeting Jan. 10, 1917.)"

By Mr. MAXSON. To the best of my recollection, that El Monte road house was another case of a man not selling at any profit, which made him a poor credit risk for those who were selling to him.

Mr. NUGENT. How far was he out of town?

Mr. MAXSON. El Monte is about 10 or 15 miles out of Los Angeles.

Mr. NUGENT. A road house?

Mr. MAXSON. A filling station.

Mr. NUGENT. Are there any other retail oil dealers in El Monte except this particular man?

Mr. MAXSON. I don't remember whether there are any others or not.

Mr. NUGENT. If he was selling gasoline at a distance of 15 miles from Los Angeles, how would that effect competitors in his neighborhood; how could it?

Mr. MAXSON. I say it would affect his credit with those who sold to him. That is another side we have to look out for. If a man is buying from us and selling at a loss, or is not making a profit, the chances are we will never see our money.

Mr. THOMPSON. What is the Five Mile House?

Mr. MAXSON. A service station.

Mr. THOMPSON. Is its sole business the oil business?

Mr. MAXSON. Yes.

Mr. MURDOCK. In that paragraph of the memorandum there is a tangle of the personal pronouns. I am going to ask you to follow and see if I get your meaning: "It was agreed that none of the members would take on the Five Mile House on El Monte Road unless *they* displayed a 20¢ sign, and that should any similar case arise in the future, drastic action would be taken to bring *them* into line." Have I got your meaning; does that first "they" and the last "them" mean members of the association?

Mr. MAXSON. I think that has reference to the owners of the Five Mile House.

Mr. THOMPSON. The last "them" has?

Mr. MAXSON. No; that refers to similar cases; the "they" purely applies to the El Monte road house.

Mr. GASKILL. Consider that in the light of the next paragraph of the memorandum of the meeting:

"It was also agreed that in case one of the members was endeavoring to straighten up one of his customers or one of the customers of a legitimate peddler, that all members of the association would stay away from the customer in question for a period of 60 days."

What do you mean by "straighten up" customers?

Mr. MAXSON. The same answer would apply to that as in the other case; it was in line with the endeavor to secure the sale of gasoline at a profit.

Mr. GASKILL. That is to say, if he felt that a customer was not retailing at a sufficiently high price, he could put pressure on the association so as to let him have free swing at his customer?

Mr. MAXSON. To some extent. That was never complied with.

Mr. NUGENT. And that no other member should sell to him.

Mr. GASKILL. It is noted the next sentence following the one "This would give the supplying party a chance to straighten them up" reads:

"The real making of this agreement was to keep the salesmen of the different companies from camping on the customer's trail when it had developed that the supplying party was experiencing trouble in bringing this offending customer into line."

In other words, all members of the Association were to keep away from that particular customer for a period of 60 days, weren't they?

Mr. MAXSON. That doesn't sound like my wording. I think that is an instruction taken from a rough memorandum. However, that was the implied intention, yes.

Mr. GASKILL. Now take, for instance, this El Monte road house, where the member of the Association supplying that house apparently felt that the price maintained there was too low; did that member have an examination made of the cost to the El Monte house to determine whether, as an actual fact, in that individual case the price asked did bring a limited profit into the margin, or was it a pure assumption that the price was insufficient?

Mr. MAXSON. It is comparatively easy to look at a station and say that, as to whether it is a profitable business. It is a part of the salesmen's training to assist the customers to do a profitable business by good service at the stations, painting or fixing them up to make them attractive to their customers, to assist his customers to succeed.

Mr. GASKILL. Then the salesman, as an expert, would appraise from his own point of view the question of whether or not the price asked was bringing a profit to the retailer, and determine whether the price asked was a proper one or not; is that correct?

Mr. MAXSON. Not necessarily; not without consulting the retailer. They consult together, and naturally the companies are in better position to know than the little fellow who starts a service station.

Mr. GASKILL. Apparently the member supplying the El Monte station was having difficulty, and he was to have 60 days to wrestle out that problem with the El Monte proprietor. Was any examination made of any books to ascertain the actual cost of selling gasoline at that station?

Mr. MAXSON. I don't know; I presume so. That I only had from the company concerned. As a matter of fact, I didn't go into the question at that service station.

Mr. NUGENT. If a man with small capital was engaged in retailing gasoline, he would not last long if he did not sell at a profit.

Mr. MAXSON. No.

Mr. NUGENT. Do I understand that the members of your Association were better able to determine whether a man was receiving a profit on his sales than the man himself?

Mr. MAXSON. In many instances, yes. Frequently peddlers of gasoline, merely because money has been made in the oil business, would buy a truck and put up a service station, and didn't know whether they were making a profit or not.

Mr. THOMPSON. Take, for instance, filling stations for the purpose of drawing customers for other purposes; did you ever go into it to find out if they were making money?

Mr. MAXSON. Such as Lucklighter? No; it was evident he was having a profitable business on his automobile accessories, but not on his gasoline.

Mr. NUGENT. In the preparation of this memorandum and its dissemination, and in view of the agreement entered into by the members of your Association, it was the intention not to sell gasoline to a retailer unless he re-sold at such prices as the Association fixed?

Mr. MAXSON. Not necessarily so.

Mr. NUGENT. Was it at all?

Mr. MAXSON. Not unless that price was necessary for him to show a profit on his business. Our price to the re-seller was the wholesale price.

Mr. NUGENT. Then your Association would fix the price at which a man engaged in retailing gasoline could make a profit?

Mr. MAXSON. No.

Mr. NUGENT. Put it another way; it was your intention to have your retailers sell at a profit?

Mr. MAXSON. Yes.

Mr. NUGENT. And you fixed the profit?

Mr. MAXSON. No, they each had a different business; perhaps a cent profit would be healthy in their case, more or less.

Mr. NUGENT. In any event, your Association determined what a proper profit would be?

Mr. MAXSON. In many cases; not all.

Mr. NUGENT. Then in accordance with that memorandum, after a proper profit had been ascertained, and the retailer had declined to sell at that profit, the members of the Association agreed not to sell him gasoline?

Mr. MAXSON. He could always get gasoline from somebody.

Mr. NUGENT. I am speaking of the members of your Association.

Mr. MAXSON. The members of our Association, yes.

Mr. NUGENT. Why was it necessary, then, to enter into an agreement that where one member had difficulty with a customer, that the other members should keep away for a period of sixty days?

Mr. MAXSON. For the same reason that we might have for doing the same thing in connection with credits. If a man owed an Association member a considerable sum of money, perhaps more than he was entitled to, another member would hesitate to extend him credit.

Mr. NUGENT. Take the El Monte road house; the man there, say, was buying from John Jones, who was a member of your Association. He was selling gasoline at 15 cents a gallon, and John Jones, from whom he purchased the gasoline, concluded that this man at El Monte was not making a sufficient profit, and he concluded that it was necessary for the man to sell at 18 cents; then if the man demurred, under this memorandum all the other members of your Association would not sell to him until he agreed to sell at 18 cents?

Mr. MAXSON. Not necessarily; sometimes they did it anyhow, in spite of agreements.

Mr. NUGENT. That was the intention?

Mr. MAXSON. Yes.

Mr. GASKILL. If it was not put into actual operation, why was that put into the last paragraph—

> "The condition looks very much better at the present time, and in view of the fact that the Western Oil Co. is cut off from their 1,000 gallons per day with the Wilshire on Feb. 1st, and that all of the peddlers are going to experience difficulty in securing supplies and a great many of them will have to discontinue business, the price situation ought to be very much improved within the next thirty days."

Mr. MAXSON. That is not from my files.

Mr. GASKILL. That is not your entry?

Mr. ENGLAND. The writer is not Mr. Maxson.

Mr. MAXSON. I think the whole memorandum is taken from some other file.

Mr. ARNOLD. The memorandum was written by a director of the Association.

Mr. THOMPSON. Do you still carry out that policy?

Mr. MAXSON. No.

Mr. MURDOCK. The members, naturally, being in the oil business want a good price for the gasoline; isn't that true—what the traffic will bear?

Mr. MAXSON. Not necessarily.

Mr. MURDOCK. It has been my experience that men like to get a good price for their wares. I am not probably as deeply versed in it as you are, but the general disposition is to get a good price.

Mr. MAXSON. I had an experience with a dentist; he got all the traffic would bear; but the oil men are disposed to get fair prices.

Mr. MURDOCK. Isn't it true that the members of that Association did not have a very high regard for price cutting?

Mr. MAXSON. No, they did not.

Mr. MURDOCK. Wasn't a large part of the endeavor on your part in writing this memorandum to soak it to the price cutter?

Mr. MAXSON. I would not say "soak" him; rather educate him along the line of his commodity.

Dr. WALKER. I would like to ask, Mr. MAXSON, did the El Monte House buy on credit?

Mr. MAXSON. As I remember it, they did.

Dr. WALKER. At that time?

Mr. MAXSON. Yes.

Mr. NUGENT. Do they pay their bills?

Mr. MAXSON. As I recall, that particular station was a poor credit risk.

(Paragraph 7 read by Dr. Walker, as follows:)

"On Jan. 12, 1917, a memorandum was sent to the members of the Association to the effect that if any member notified the secretary of the 'likelihood of losing a customer through some misunderstanding,' other members would refuse to supply such customers within 60 days after such notification. A list of five customers was included in this memorandum. (See memorandum Jan. 12, 1917.)"

Mr. ENGLAND. This was a memorandum from the Association's files.

Mr. MAXSON. As I recall, those were all poor credit risks; but I don't think that 60 day scheme was ever carried out; I never had any evidence as to whether it was or not.

Mr. THOMPSON. How much of the oil of that country does your Association distribute?

Mr. MAXSON. Our members supply Los Angeles and contiguous territory probably 60 to 75% of the gasoline and oils.

Dr. WALKER. What do you mean by "contiguous territory;" what radius, say?

Mr. MAXSON. We extend over perhaps three or four counties.

Dr. WALKER. How many miles?

Mr. MAXSON. All within the State of California.

Dr. WALKER. How many miles radius from Los Angeles?

Mr. MAXSON. Probably 250 miles.

Dr. WALKER. What population?

Mr. MAXSON. A million and a half.

Mr. MURDOCK. San Diego and Long Beach?

Mr. MAXSON. Yes.

Mr. GASKILL. Do they sell in the Imperial Valley?

Mr. MAXSON. Yes.

Mr. MURDOCK. It would be interesting to know what is the approximate total consumption of gasoline in that territory. It is enormous, of course.

Mr. MAXSON. Last year in the State of California it was approximately 300,000,000 gallons, of which the ten southern counties consumed probably two-thirds.

(Paragraph 8 read by Dr. Walker, as follows:)

"A memorandum of the meeting of Jan. 17, 1917, shows that an agreement was reached that 'as long as the El Monte Road Five Mile House is now displaying a 20¢ sign, the Wilshire, Standard Oil Co. and Union will start in to clean up the 20¢ signs at Alhambra, South Pasadena and Pasadena.' (See memorandum dated Jan. 18, 1917)

Mr. MAXSON. I can't say anything about that memorandum, gentlemen.

Mr. MURDOCK. It seems contradictory. It doesn't seem to mean anything to me.

Mr. MAXSON. That does not come from our files; I can't say.

Dr. WALKER. Was it due to a difference in price in different localities?

Mr. MAXSON. I think there was half a cent difference in price at Alhambra.

Mr. MURDOCK. Why at one place in the same vicinity would there be a differential of one-half a cent?

Mr. MAXSON. That takes care of the freight, etc.

Mr. MURDOCK. Would it be transportation that would cause that?

Mr. MAXSON. Yes.

Mr. ENGLAND. A thing that has always interested me in this is how the Association members seem to know that the Standard Oil Co., which is not a member of their Association, would cooperate with them in cleaning up the 20¢ signs.

Mr. MAXSON. I don't know how the Union Oil Company would know that; that is, from their memorandum. I wouldn't know it. While we have friendly relations with the Standard Oil Company just as long as their market is a fair one, if it is such a price that it is not profitable to us, then we establish our own market.

Mr. THOMPSON. Do you follow their prices?

Mr. MAXSON. As far as possible. There was an occasion when the prices of crude were made by our own members.

Mr. ENGLAND. Wasn't that due to the fact that the price of high gravity crude was different—more than the lower crudes from San Joaquin Valley and Southern California?

Mr. MAXSON. That was so in this case.

(Paragraph 9 read by Dr. Walker, as follows:)

"On May 5, 1919, the Association issued a 'memorandum notice' covering gasoline, engine distillate and kerosene, and naming a price for each to each class of customer. (See memorandum notice dated May 5, 1919.)"

Mr. THOMPSON. You have different types of customers?

Mr. MAXSON. We have garage and service station customers, peddlers or jobbing customers; very few, however, out there.

Dr. WALKER. You have public utilities, too.

Mr. MAXSON. Yes. Ordinarily, the price is not predicated on the quantity—more upon the class of customer.

Mr. THOMPSON. And credit standing.

Mr. MAXSON. Credit standing enters into it. For instance, garage or service station credit is pretty low. A commercial customer is a house having a lot of trucks, usually a house having more standing than a garage and easier to serve. We can serve them down in the industrial part of the city; and the public utilities are still easier to serve, and use still larger quantities of gasoline.

(Paragraph 10 read by Dr. Walker, as follows:)

"On May 8, 1919, the Association issued a 'confidential' memorandum notice fixing the price of gasoline, engine distillate, and kerosene to bona fide peddlers and containing a list of such peddlers stating that 'no new peddlers will be recognized.' (See memorandum notice dated May 8, 1919.)"

Mr. MAXSON. Well, the list of peddlers had grown to such an extent that we felt they were becoming more or less of a nuisance to have them around our plants; so we thought rather than have any more go into business, we would discourage it.

Dr. WALKER. Was it a fact that the peddlers were much harder to keep in line on prices than other retailers?

Mr. MAXSON. No, not any more so.

Mr. MURDOCK. Under that order, Mr. Maxson, were any other mills, except the Globe and Sperry mills, barred from getting gasoline at 18½ cents? If I had a mill out there, would I have to pay 19½ cents? I notice you enumerate who the exceptions are. You didn't do it in that case by saying flour mills are exempt and packing houses are exempt, but you named them specifically. I wonder what the practice was in that regard.

Mr. MAXSON. They were placed in the same line with the larger commercial houses. It might not necessarily have been just those particular mills; they happened to be the only mills of any consequence in Los Angeles. Any other mills would have been treated the same way.

Mr. MURDOCK. It was not a question of favoritism, but a question of quantity?

Mr. MAXSON. Yes. We might have said, "such as flour mills or packing houses."

Mr. MURDOCK. Mr. Maxson, in an association like yours, does the membership keep pretty good track of your distributing agencies, and if you feel that there are getting to be too many distributing stations or too many peddlers, you feel free, of course to limit the numbers?

Mr. MAXSON. Yes.

Mr. MURDOCK. You felt that, rather than the more customers the merrier, it would be better to have fewer?

Mr. MAXSON. If it promoted efficiency. There were too many there, crossing and re-crossing each other's tracks.

Mr. MURDOCK. You feel that if you have more dealers, you sell less gasoline?

Mr. MAXSON. I think so, yes.

(Paragraph 11 read by Dr. Walker, as follows:)

"The members of the Association agreed on Jan. 28, 1919, 'that no price should be quoted either Tarr & McComb or Mr. Roseberg other than 6-1/4¢ tank cars f. o. b. refinery on gas oil. This on account of the irresponsibility of the two parties in question as to the maintenance of prices.' At the same time 'it was further agreed that all interested would quote legitimate

jobbers at 5-3/4¢ or 6-1/4¢ direct to the consumer.' (See memorandu
dated Jan. 23, 1919.)"

Mr. THOMPSON. Tarr & McComb, is that a responsible house?

Mr. MAXSON. Fairly so, although they are more dealers in fuel oil.

Mr. THOMPSON. How is Roseberg; does he pay his bills?

Mr. MAXSON. Yes, but he is an undesirable customer to many I am told.

Mr. THOMPSON. Your objection to him here is because he did not maintai
prices?

Mr. MAXSON. That memorandum is not in my files.

Mr. ENGLAND. That is a memorandum of an Association meeting, but it
not Mr. Maxson's memorandum.

Mr. NUGENT. Do you attend all of the meetings?

Mr. MAXSON. Not all.

Mr. NUGENT. In your absence, some one is delegated to perform your duties

Mr. MAXSON. Yes, the young lady in the office.

Mr. NUGENT. And the memorandum prepared by the one delegated to pe
form the duties of the secretary is in accordance with the wishes of th
Association as expressed?

Mr. MAXSON. If it appears on the minutes.

Mr. THOMPSON. Were you present when they discussed the Tarr & McCom
and Rossberg matter?

Mr. MAXSON. As far as I remember.

Mr. THOMPSON. Do you recall that it was there agreed that they should no
sell to them because they did not maintain prices?

Mr. MAXSON. I don't remember that that was the reason. On general prin
ciples they were undesirable customers.

Dr. WALKER. The memoranda referred to in the questions that have bee
put were not in the files of your office?

Mr. MAXSON. This particular one was not.

Dr. WALKER. Were the others generally?

Mr. MAXSON. There are a few here, one right here, and here is another on

Dr. WALKER. Isn't it true that memoranda of the meetings were not filed i
the office?

Mr. MAXSON. The memoranda of the meetings were on file in the office an
free to the investigators.

Mr. GASKILL. Do you know whether the officers or members made notes tha
were not filed in the office?

Mr. MAXSON. Yes; memoranda made by some members for their own infor
mation, and to report to their superior officers.

Mr. GASKILL. And to report to others besides the superior officers?

Mr. MAXSON. The superior officers in their companies.

Mr. GASKILL. Who is C. W. Ralph?

Mr. MAXSON. Sales manager.

Mr. GASKILL. The indorsement indicates that the maker of that memorandum
sent a copy to Mr. Ralph?

Mr. MAXSON. Yes.

(Paragraph 12 read by Dr. Walker, as follows:)

"The Association issued price lists, on stove and furnace distillate, from
time to time.

(See price list on stove and furnace distillate 1-15-17
" " " " " " " " 9- 1-17
" " " " " " " " 12- 1-17
" " " " " " " " 5- 6-18
" " " " " " " " 10-14-18
" " " " " " " " 2-20-20"

Mr. MAXSON. Those are two commodities, gentlemen, that the Standard Oil
Co. does not sell in Los Angeles; consequently, the Association published these
price-lists as the price-list of the leading marketer of those particular commodi
ties in Los Angeles, viz., the Diamond Oil Company, as a guide for others in the
same line of business, or for their information.

Mr. ARNOLD. And the Diamond was a member of the Association?

Mr. MAXSON. Yes.

Mr. THOMPSON. If a member does not file a price-list, is he called on to the
carpet by the Association?

Mr. MAXSON. It is purely a guide to follow if he chooses.

Mr. THOMPSON. As a rule do they follow it?

Mr. MAXSON. As a rule.

Mr. MURDOCK. I would like to know what stove distillate is.

Mr. MAXSON. Burning oil 33 or 34 gravity, used extensively by bakers and some of the larger restaurants, and by some business houses for heating.

Mr. MURDOCK. Distinguished as a distillate from furnace?

Mr. MAXSON. That is 27 to 28 gravity, adaptable to apartment houses, where they have a different kind of burner. Stove distillate is going out of use.

(Paragraph 13 read by Dr. Walker, as follows:)

"The members of the Association agreed on Dec. 20, 1916, 'that only four refiners were going to bid on the contract covering the (Los Angeles) city requirements for 1917' and 'that all should bid 1c off open tank wagon market price at time and place of delivery.' (See memorandum of meeting held Dec. 20, 1916.)"

Mr. MAXSON. Well, that was as many as ever cared to bid on that business, and it didn't necessarily restrict the bidding to those particular companies if any one else wanted to bid.

Mr. THOMPSON. Did any others bid?

Mr. MAXSON. I don't know that they did. I don't know that all of these four did.

Mr. ENGLAND. How did the Association know what the Standard intended to bid?

Mr. MAXSON. The Association never know what the Standard was going to bid.

Mr. THOMPSON. Were you present at the meeting on December 20, 1916, when this resolution was agreed upon?

Mr. MAXSON. I guess I was; I signed the minutes that day.

Mr. THOMPSON. Those who were not permitted to bid under this agreement, what was their attitude; did they object?

Mr. MAXSON. No one was not permitted to bid.

Mr. ENGLAND. Was it agreed at the meeting that only the four companies should bid?

Mr. MAXSON. No.

Mr. ENGLAND. Why wasn't it entered? What was the reason for the preparation and issuance of the memoranda at these various meetings that don't appear in the record of the meetings?

Mr. MAXSON. Because they were not a part of the business of the meeting. These conferences, or whatever they may be, mostly occurred out in the hall after the meeting, or at other offices.

Mr. NUGENT. Among the members of the Association?

Mr. MAXSON. Yes.

Mr. MURDOCK. That is interesting. These memoranda are quite apart from the regular minutes?

Mr. MAXSON. Yes.

Mr. MURDOCK. Now, Mr. Maxson, we have had similar cases. You have been secretary for a long while; how is that done? You hold a meeting; it must be called to order and certain things done, all of which are mentioned. Then do they drift out and hold another meeting? I would like to know.

Mr. MAXSON. They go out arm in arm. The chances are they haven't seen each other for a week. After the crowd is outside they do the real thing they are interested in.

Mr. NUGENT. How do they get it to you? Are you part of the crowd as it drifts out?

Mr. MAXSON. Frequently a part of the crowd. I just want to give you a sample of one or two of the things in the meetings. In order to give you an idea, gentlemen, of the difference between these memoranda and what goes on at the meetings, I would like to read, if you please, the minutes of the meeting of that particular day.

Mr. MURDOCK. The day this thing was done where the crowd got together and agreed that Los Angeles could have gasoline at a certain sum?

Mr. MAXSON. Anyhow, that particular day, Dec. 20, 1916, the secretary submitted report of the committee on amending the city specifications on gasoline, requested the withdrawal of an ordinance, etc. Committee on government specifications reported progress and was continued. Communication from the Bureau of Explosives at Washington, setting forth certain proposed amendments to the shipping rules for handling gasoline. We got numerous such notices,

and the members are apprised of such things and kept informed, if they don't happen to get the bulletins from Washington, or read all the trade papers. I am there to keep them out of trouble as much as I can.

(Paragraph 14 read by Dr. Walker, as follows:)

"On Jan. 17, 1917, the question of new bids for the City of Los Angeles was taken up by the Association and it was agreed that 'all parties who will bid on these new requirements will bid the same as last time, namely 1¢ off the open tank wagon market price at time and place of delivery.' (See memorandum of meeting held Jan. 17, 1917.)"

Mr. ENGLAND. I might say that the City of Los Angeles rejected the first bid.

Mr. THOMPSON. Were they all the same identically?

Mr. ENGLAND. They were.

Mr. MAXSON. The City of Los Angeles was considered the same as the public utilities comprising the city, entitled to one cent off the price of the retail market. That would have been done whether we had met together or not, very likely.

Mr. MURDOCK. A Commission like this, for instance, if it is going to contract for work, advertises for bids—open bids. Under this arrangement, Mr. Maxson, that is largely false motion, because instead of advertising for bids, if we approached your Association we would get the same price that was agreed upon at that meeting, whether done in accordance with the minutes or not. It isn't usual that bids are the same.

Mr. MAXSON. It comes about automatically. There is a certain commercial price and a public utility price for most every commodity.

Mr. NUGENT. As a matter of fact, there was a price agreed upon, and there were no competitive bids?

Mr. MAXSON. Fixed by the larger companies and usually followed by the smaller ones.

Mr. ENGLAND. If the Standard adopts a price, you usually adopt it?

Mr. MAXSON. Yes.

Mr. THOMPSON. Did the Standard Oil Co. bid in this instance?

Mr. MAXSON. This is a Union Oil Co. memorandum. The Standard Oil Co. appears to be a bidder.

Mr. THOMPSON. Is it a coincidence that your four bids were the same as the Standard's? How did you happen to know what theirs was going to be?

Mr. MAXSON. We don't always know it, but we can make a pretty good guess, judging by the bids of a like nature made in the past.

Dr. WALKER. Do you mean they have a certain market price, and have been in the habit of bidding so much off that to public utilities in the city?

Mr. MAXSON. Yes, just as it has been the practice to give gasoline to the reseller at 2 cents off the retail price.

Mr. THOMPSON. I believe that covers all of the questions, doesn't it, doctor?

Dr. WALKER. There is a No. 15 here.

Mr. NUGENT. Does that memorandum to which you just referred, doctor, purport to be a memorandum of action taken by Mr. Maxson's Association?

Mr. ENGLAND. By the members of his Association.

Dr. WALKER. I think the second memorandum is important, the supplementary one, skipping No. 15. No. 15 is just a statement of fact. Mr. Maxson is also secretary of this other association.

Mr. ENGLAND. Pardon me; there is one thing I have always been curious about, and have already mentioned it to Mr. Maxson; that is, beginning in 1915, when the Association met and had its first price agreement, following all the way through and up to date, the Standard Oil Co. was always very promptly supplied with a memorandum similar to the one we have here of the action taken at these meetings, and I have been curious to know how it was they could obtain this information so very promptly—whether they had a representative at the meeting, or just how they got this information. The thing I am curious to know is, how the Standard Oil Co. was always supplied with a memorandum showing the action taken at these meetings.

Mr. MAXSON. It has always been a puzzle to me, just as much as to you how the Standard knew so much about our business, because they had no access to our files or offices; in fact, the representatives of the Standard Oil Co. were never in my office.

Mr. THOMPSON. You don't send them communications?

Mr. MAXSON. No. Probably they secure the information from some of the members.

Mr. MURDOCK. It could be easily done by telephone.

Mr. MAXSON. Yes, but never by myself.

Mr. ENGLAND. Would it be possible to obtain it from the trade—the retailers? Would they know anything about the action of the Association?

Mr. MAXSON. Sometimes they knew, yes. Probably they could get it from some of our salesmen.

Mr. ENGLAND. Your judgment would be that they would get it from the salesmen, and not general gossip?

Mr. MAXSON. That is another thing we try to bring about, the elimination of so much false information going about through the trade. I am called upon every day to establish the veracity of some statement that has been made somewhere down the line, and I find that that alone has improved the condition of business generally with our people.

Dr. WALKER. The Standard seems to have succeeded along that line; they get the facts pretty accurately.

Mr. MAXSON. I suppose they do.

Mr. THOMPSON. Suppose we proceed with this last memorandum.

(Paragraph 1 read by Dr. Walker, as follows:)

"The California Petroleum Exchange through its Secretary H. H. Maxson, collected information from its members as to production and sales of gasoline and engine distillate for the purpose of 'determining the limits of surplus goods we are asking other marketers to dispose of pending the stabilising of prices.' (Letter from Maxson to Turner Oil Co., April 4, 1918.)"

Mr. MURDOCK. Will you, Mr. Maxson, first explain what is the difference between the Exchange and the Association?

Mr. MAXSON. The Exchange I am responsible for organising in 1918 as a wheel within a wheel. The Exchange is composed of five of the small refiners for the purpose of giving a greater purchasing power of crude oil, which they have had difficulty in obtaining, and, second, for the purpose of disposing of surplus products, such products as are not consumed on the local market, such as kerosene, which is always a drug on our market, because natural gas and electricity take the place of kerosene oil and because we have a warmer climate.

Mr. MURDOCK. Then the Exchange is a much smaller body than the Association?

Mr. MAXSON. Yes. It has more power as buying and selling agents. The Association is a mutual admiration society, I sometimes call it.

Mr. MURDOCK. It very frequently happens that here, in talking to secretaries of associations, the secretary tells the Commission that he is under the constant obligation to warn members of the Association at their meetings that they must not talk price or price agreements. Do you recollect whether, in your career, you have sounded that warning to members of the Association at the meetings?

Mr. MAXSON. Perhaps on occasions I have, yes; though they accuse us of having been very particular to avoid that subject.

Mr. MURDOCK. It is almost inconceivable to see a group of business men get together to talk over business that they will not talk prices.

Mr. MAXSON. Yes, occasionally; but they are reminded that they are violating some statute.

Mr. THOMPSON. Anything further on No. 1?

Mr. MAXSON. There is another benefit to any one of our members whose storage capacity is limited, and who is not successful in disposing of all of his products, while some other member will be more fortunate in disposing of what this man accumulates; so my office is a means of keeping each man's stock of supplies from running over. It is a material benefit to the members to be able to switch one man's stuff into another line of trade, or remove it out of the territory.

Mr. MURDOCK. Of course there is an assumption in anybody's mind that if you allow in a given territory a surplus of supplies to accumulate, you naturally vary the price, and that in the shipment of the surplus out of the territory, it was for the purpose of maintaining the price in that given territory.

Mr. MAXSON. Yes; from the producer's standpoint, it is for the purpose of keeping his stock in a healthy condition. Possibly the quality of his goods is a little off. However, this Association has gone to a lot of trouble to establish uniform quality. I will have to take credit for establishing gasoline quality in Los Angeles.

Mr. ENGLAND. What is the test?

Mr. MAXSON. We have the Navy specifications.

Mr. MURDOCK. We had a case here, Mr. Maxson, where a member of the California Raisin Co. one year was embarrassed by the fact that the carry-over was preventing him from making his price for the succeeding year, and he went out and bought up the surplus from the market which was embarrassing him. Of course we thought that was illegal.

Mr. MAXSON. We are not so organized that we can conduct business along the lines that the raisin growers do. I have endeavored to follow more in the footsteps of the California Fruit Growers Exchange, which I understand complies with every requirement of the law. Am I right?

Mr. MURDOCK. I don't think it has ever been challenged.

Mr. MAXSON. When I organized the Exchange, I thought that the Fruit Growers was a good example to follow.

Mr. MURDOCK. I think the Fruit Growers doesn't take title to the goods, and your Exchange doesn't take title to the goods?

Mr. MAXSON. No.

(Paragraph 2 read by Dr. Walker, as follows:)

"During the first half of 1919 (Jan. 1 to July 9, 1919) the exchange shipped 198 car loads of stove and furnace distillate out of the Los Angeles territory, shipments being prorated among the exchange members apparently, the purpose being to take care of the oversupply of these products and maintain prices. (See Annual Report of Exchange, July 9, 1919.)"

Mr. MAXSON. As a matter of fact, that stove and furnace distillate was not shipped out of the Los Angeles territory. We shipped engine distillate out, but not stove and furnace.

Mr. ENGLAND. So that paragraph showing shipments as far east as West Virginia does not refer to the 198 cars.

Mr. MAXSON. No.

Dr. WALKER. But you did ship some commodities to West Virginia?

Mr. MAXSON. Engine distillate.

Mr. THOMPSON. 198 carloads?

Mr. MAXSON. That is in another memorandum.

(Paragraph 3 read by Dr. Walker, as follows:)

"The California Petroleum Exchange attempted to eliminate competition in purchasing crude petroleum and avoid the payment of premium for light crude by establishing a purchasing agency in connection with the Independent Petroleum Marketers Association. (See memorandum of Association meeting, Feb. 14, 1917. Letter from secretary of the Association to members, May 13, 1918.)"

Mr. MAXSON. We have had this difficulty, gentlemen, in securing crude oil from the producers, due to the fact that the Standard Oil facilities, that is, the larger companies' facilities, pipe lines, etc., are more inviting to the average producer. The smaller refiners must take their crude oil in tank cars, which entails a certain expense to the producers, and awaiting the arrival of tank cars. During the period when this has been so difficult to secure, producers have been more or less inclined to capitalize upon the facilities of the larger companies in contrast with ours, and naturally wanted to secure as much as they could for their crude oil, and wanted to get them to bidding against one another for this crude, until the prices being paid were as high as 75 cents to a dollar a barrel bonus, and their purchase price constituted the crude oil market at the wells. There was only one way, to organize and secure sufficient information to know whether or not a particular producer had been offered a higher price than our members. They were lying all the time; so we were paying more than we should pay.

Mr. MURDOCK. The Standard doesn't take a premium?

Mr. MAXSON. No; the premium is a greater price than that set by the Standard.

Mr. MURDOCK. But the smaller refiners did pay a premium for light crude?

Mr. MAXSON. Yes. We got some oil without a premium but usually we had to pay a bonus for it.

Mr. THOMPSON. Do you care to say anything further, Mr. Maxson? Do you care to go over it with Mr. Richmond?

Mr. RICHMOND. I am Secretary to Congressman Osborne. I don't represent Mr. Maxson, but I am here to help him on his matters, and there are two or three points that have not been brought out by the Commission. You said, Mr. Maxson, that you were endeavoring to maintain the organization in conformity with the Federal Trade Commission's approved methods?

Mr. MAXSON. Yes.

Mr. RICHMOND. Now, I notice that in this list, this memorandum list of charges, or statement of matters on which questions were to be asked, that the latest date is July 9, 1919. In the memorandum concerning the Independent Petroleum Marketers' Association the latest date I believe is February, some date in February, 1917.

Mr. ARNOLD. February 20, 1920, is in the price-list.

Mr. RICHMOND. Waiving the matter of the price-list, I understand that the latest date anywhere else was July 9, 1919. I will ask you if representatives of this Commission called at your office and examined your papers?

Mr. MAXSON. Yes, they did.

Mr. RICHMOND. Did they have access to all your files?

Mr. MAXSON. They had free access to all my files.

Mr. RICHMOND. Spent some time?

Mr. MAXSON. About a week or ten days. All of the files of my office were at their disposal.

Mr. RICHMOND. Were you present when the work was going on?

Mr. MAXSON. As much as I could be.

Mr. RICHMOND. And they seemed diligent?

Mr. MAXSON. Very much so.

Mr. RICHMOND. That being so, and no questions having arisen since that date, is it your two associations' policy to continue any of these practices which have been suggested might be objectionable?

Mr. MAXSON. No, nothing that we have any knowledge of.

Mr. MUSSOCK. You have opened a pretty wide door. Why do you say considered objectionable?

Mr. RICHMOND. I had in mind that they were matters into which you desired to inquire, because the Commission thought they might prove objectionable. Mr. Maxson, are any of these matters, matters involving interstate commerce?

Mr. GASKILL. Isn't that a jurisdictional question?

Mr. RICHMOND. Yes.

Mr. THOMPSON. Is he qualified to speak on that question?

Mr. NUSBAUM. Let me call your attention to this fact: This investigation is in response to a Senate Resolution. It is not instigated by the Federal Trade Commission; it is simply a Senate Resolution, and a report is to be prepared by this Commission and submitted to the Senate.

Mr. ENGLAND. I might also say, Senator, that the Resolution specified that the period beginning with 1914 should be covered.

Mr. THOMPSON. The mandate came from the Senate; it was not instigated by us.

Mr. NUSBAUM. They desire to size up that situation. Interstate or intrastate commerce has nothing to do with it.

Mr. RICHMOND. Do any of these shipments or any of these matters dealt with in these memoranda concern any understandings had with the Standard Oil Company?

Mr. MAXSON. No.

Mr. RICHMOND. Or any company outside of California?

Mr. MAXSON. No; our membership is confined to California and to organizations outside of the Standard Oil Co. Our business is practically all done in the State of California.

Mr. GASKILL. In making these replies, I understand you are referring to Association activities that relate to practices or agreements executed without your knowledge, and shown by some of the memoranda?

Mr. MAXSON. They have to do with our business as shown by the records of the organization.

Mr. RICHMOND. It is my understanding that the Commission is not proceeding under the authority of the act to regulate commerce, but merely under the Poindexter Resolution, and therefore this testimony doesn't bind the Association in another proceeding.

Mr. MUSSOCK. Mr. Maxson, before you go, for my own satisfaction, who did finally sell the City of Los Angeles gasoline, after it had advertised for bids and re-advertised for bids and got the same bids again, then bought in the open market? What firm sold them their gasoline?

Mr. MAXSON. The purchasing agent alternated among the various concerns; one company one month and one another.

Mr. MUSSOCK. That was spread out among the four companies?

Mr. MAXSON. I presume there were some other companies that wanted to bid; ordinarily it is not desirable.

Mr. MURDOCK. Did this feature of the case get into the Los Angeles papers?

Mr. MAXSON. I never knew anything to be kept out of the papers.

Mr. THOMPSON. If there is nothing further, we will adjourn.

(Meeting adjourned at 4.45 P. M.)

EXHIBIT 5.

KINGMAN (ARIZONA) CASE.

R-977

STANDARD LETTER ON CONDITIONS AT KINGMAN.

PHOENIX, ARIZ., *June 26, 1915.*

Subject: Conditions at Kingman.

Mr. H. T. HARPER,
Standard Oil Bldg., San Francisco, California.

DEAR SIR: Referring again to conditions at Kingman:

The writer has just returned from that field, and finds a rather perplexing situation there.

It is apparent that the Union Oil Co. have lowered the list price at Kingman 1¼¢ per gal. The present price condition cannot be construed any other way, as they are selling to every small consumer, merchandise house, and Mining Company at our Dealer's price, which is 1¼¢ off list on iron barrels and cases.

On top of this cut in price they are making deliveries to the mines, etc., at about one-half the cost per ton of which Lovin & Withers, Tarr & McComb and the Arizona Stores charge. This gives the small owner the benefit of our present dealers price at Kingman, besides allowing them to enjoy a freight haul which figures about 2¢ per gallon less than what they have formerly paid.

The country tributary to Kingman is not suitable for a truck, altho the operating companies at Kingman use short coupled wagons with as high as ten to sixteen mules to drag the loads over the mountains. The Union have been experiencing a large amount of difficulty in making the trips; in fact, the truck has refused to go over certain mountains, and they have had to pay exorbitant freight charges to the freighting companies to pick them up on the road and deliver the goods to the customers. I feel confident in saying that to any well-organized company their present business policy would not allow them to keep it up very long, providing they want to do business at a profit. They have made the boast to the interests at Kingman that they are going to do business if they are compelled to do it at a loss, and this apparently is what they are doing. Our dealers are selling our products at cost price in order to meet the Union competition. This, of course, they will not be able to keep up for any length of time. Tarr & McComb, Lovin and Withers and the Arizona Stores Co. all voiced their opinion that they wanted to still handle business and buy our products, but asked for a differential under their present price so as to enable them to do business and make a small profit.

There seems to be but two avenues open to us at Kingman; one is to lower our list price of 1¼¢ per gal., giving the dealers their present differentials off list. This would enable the dealer to obtain a small profit, and I believe we would continue to secure a large portion of the business even though the freighting charge of these companies is higher than the Union's.

I doubt if the Union will pursue their present freighting policy very long, unless they desire to lose money.

The other avenue would be to establish a list price and go after the business direct. This would be a very costly way of doing business, as it would necessitate placing a salesman in the field to stay at Kingman permanently. We would have to buy him an automobile. We would be compelled in a certain measure to extend credit to small mines that take all the way from six to nine months to pay their bills. We would either have to purchase an auto truck to make deliveries, or would be compelled in a measure to meet the Union's laid down prices by employing freighting outfits.

I would like to secure for you concrete evidence of this price which the Union is making, and I believe I will be able to forward you some of their invoices

the near future. There is no question but what the price is correct, as we ified it in many ways.
t would seem that it is imperative for us to arrange price conditions at gman so as to give the dealers their profit at once, or change our selling icy completely and go after the trade direct.
would be pleased to have your version of what you believe should be done, er reading the information which I have given you.

Yours very truly,

J. E. BALSLEY,
District Sales Manager.

ER:E

STANDARD LETTER IN RE REDUCTION OF PRICES.

R-977

SAN FRANCISCO, CAL., *June 30, 1915.*

Subject: Conditions at Kingman.

J. E. BALSLEY,
Phoenix, Ariz.

EAR SIR: We have carefully gone into the matter relative to conditions at gman, as mentioned in your letter of June 20th, but cannot fully concur with in your recommendations as to the reduction in price.
Will suggest that immediately upon receipt of this letter, you reduce your ces at Kingman on Refined Oil, Red Crown Gasoline and Engine Distillate, h bulk and cases, 1¢ per gallon, and after complying with the above kindly ise this office the prices that will be in effect at Kingman.
t is our impression that this reduction in price should meet the competitive ditions that exist, and at the same time allow a sufficient margin for the bers in that vicinity to handle our products.
Kindly keep careful watch of the situation and advise us fully of any changes.

Yours truly,

P.

TH:P

UNION LETTER IN RE STANDARD PRICE REDUCTION.

CAM-628

KINGMAN, *Oct. 14th, 1915.*

. BEACH, Special Agent,
Phoenix, Ariz.

Last Raise on Gasoline & Distillate.

fter talking with several customers and seeing two or three invoices it us that the Standard Oil Company did not make the raise of one cent on oline and one half cent on Distillate. As they are still selling here at the price, viz, Gasoline 17 cts. and Distillate 12 cts.
he above raise was authorized by your office on October Fifth.
ind today that Standard Oil Co. sold Golconda Extension Mines Co. a car 6 gravity FUEL Oil at 40 cts. F. O. B. Los Angeles.

Yours very truly,

(Sgd) C. A. MOORE

to
r. C. W. Ralph

UNION LETTER INSTRUCTING AGENT TO CONFER WITH STANDARD.

JHH-98

LOS ANGELES, CAL., *Oct. 18, 1915.*

. BEACH, Spec. Agent
Phoenix, Arizona.

Advance in prices.

'e have just wired you as per confirmation attached. C. A. Moore's letter ou of October 14th, file CAM-628, copy to us; also his letter, file CAM-630, October 14th, copy to us. In both instances he is calling our attention to competitor's not advancing their prices.

We trust you can see who ever is necessary and get this adjusted, for, if they will not line up as we have been lead to believe they would do, it will simply force us to meet existing conditions, which we do not wish to do, providing it can be adjusted differently.

Trusting you can work this out satisfactorily, kindly advising us the outcome, we are,

Yours truly,

JHH–NB *Manager of Stations*

UNION TELEGRAM INSTRUCTING AGENT TO CONFER WITH STANDARD.

No. 3405

[Telegram.]

UNION OIL COMPANY OF CALIFORNIA,
Los Angeles, Cal., Oct. 18, 1915.

To C. E. BEACH,
UNION OIL CO. OF ARIZONA,
Phoenix, Arizona.

Referring to Moore's letter fourteenth Competitors not meeting advances See them and adjust Advise us

UNION OIL CO. OF CALIFORNIA

Dept. Sales
Chg to U. O. Co. of Cal.
NB 8/30 A. M.

UNION LETTERS REPORTING CONFERENCE WITH STANDARD.

In reply give No. CEB–7782

UNION OIL COMPANY OF CALIFORNIA
Phoenix, Ariz. October 19, 1915.

Mr. C. W. RALPH, Mgr. Stations,
Att'n. Mr.

At Los Angeles, Calif.
Answering letter-JHH–68
Subject: Kingman Prices.

Dear Sir: Referring to the above subject: I have talked this matter over with our Competitor, and of course, they denied not having raised their price the last time prices were raised in Arizona. However, one of their representatives is on his way to the Coast, and informs me is stopping off at Kingman, and will look into this matter. I think this will be adjusted if they are out of line.

Yours very truly,

(Sgd) C. E. BEACH,
Special Agent

CEB: ES.

In reply give No. CEB–7783

UNION OIL COMPANY OF CALIFORNIA
Phoenix, Ariz. October 19, 1915.

Flagstaff, Arizona. CAM–630 Kingman Prices.

C. A. Moore.

Referring to the above subject: I have not had a chance to talk this matter over with Mr. Baisley, but talked to Mr. Ferguson and of course he contends that they are selling at the regular list price, and raised the price as we did last time. However, Mr. Ferguson is on his way to Kingman at the present time, and I trust will adjust matters, but it would be well for you to keep your eye on this, which I know you will do, and see if they really do make the right price.

At the time I wired you last Saturday, I did not notice the clause in your CAM–626 regarding Mr. Ridenour at Hackberry.

With best regards, I am,

Yours very truly,

(Sgd) C. E. BEACH,
Special Agent.

CEB/ES
cc–C. W. Ralph

UNION LETTER ALLEGING PRICE CUTTING BY STANDARD.

CAM-055

KINGMAN, *Oct. 29th, 1915.*

Kingman Prices.

C. E. BEACH, Special Agt.
Phoenix, Ariz.

I have been making a very hard fight since you left and as so many things turn out in this our Jonah point I have had bad luck on getting our empty barrels in. In the first place I was unable to catch the Copper Giant Mines people to get the barrels from Valentine Bowen spoke of. Then it so happened that the Santa Fe local freight ran up against the Hour Law which tied them up. This balled up their shipping, so we have no barrels up to this hour.

I have been cussed more in the past two days by our customers because we failed to deliver their orders than I have had since coming into the State. Have had 3,000 gallons of orders cancelled.

Had the business in sight and would have liked to have made my estimate of 25,000 gallons good for October but circumstances went against me.

Had a talk with Union Basin Mining Co. of Golconda this evening and Mr. Wamvig states that we are one cent high over the S. O. Co's. price quoted him Oct 27th, on Kerosene, Gasoline, and Distillate. Also claims that S. O. Co.'s. new quotations on Lub. Oils are below our latest quotations.

Do not know what Mr. Balsley will tell you but we are being imposed on here by S. O. Co. beyond any question of a doubt.

I shall continue to hold the big end of this business if you will either stop them from cutting or let me meet their sallies.

Your very truly,

(Sgd) C. A. Moore

cc to C. W. Ralph

UNION LETTER SUGGESTING CONFERENCE WITH STANDARD.

In Reply Give No. JHH-131

UNION OIL COMPANY OF CALIFORNIA,
Los Angeles, Calif., Nov. 8, 1915.

Kingman Prices.

C. E. BEACH, Spec. Agt.
Phoenix, Arizona.

We are today in receipt of copy of Mr. C. A. Moore's letter No. 055, of October 29th.

After reading this letter over carefully we would suggest that you see Mr. B. and show him that portion of Mr. Moore's letter in which Mr. Moore thinks his company is treating us unfairly in not maintaining prices.

As you appreciate we took Mr. B. at his face value and believe that he intends to play fair with us, and it is only courtesy on our part to give him a chance to show his hand and not judge him unduly.

For your information, I went to Kingman as you well know, and tried to straighten out the situation to the best of my ability. We had the assurance from Mr. Harlan that his company intended to play fair and do everything they possibly could to adjust any matters as to price cutting. I gave your assurance, and my own, that we would do our part to keep from demoralizing prices as I know that you feel we will all be better off to get a good price out of our Kingman products as you realize it is a very expensive place to do business.

Mr. Ralph has written you in full on this subject and when next I have the pleasure of seeing you in person I will be more than glad to tell you many things which will be to your benefit and ours.

In reference to assisting Mr. Moore in regard to getting empty containers back to Kingman as stated to you and to him, we are short of these empty containers at Los Angeles, and he certainly must not look to us for help. We regret that we are in this condition, but these are the facts and he must exert his own personal efforts in and around Kingman and see that the packages which he puts out are returned to him promptly.

I went over some of the drum records at Kingman and found that some of the packages had been out from three to six months. I believe that this can be overcome to a great extent if the Kingman boys will take hold of this matter themselves and try to get these containers back and not lean too much on you and your office to do everything for them.

We appreciate that it is discouraging to Mr. Moore to take orders and not be able to fill them and no doubt the trade does "cuss" him as he puts it for not filling their orders promptly, but there are always two sides and, as stated before, I believe that a great deal of this cussing that he is getting can be eliminated if he will chase himself a little harder and not give out his containers too freely to people who will not return them.

I took it upon myself to instruct Mr. Moore that he must not cut any prices without first conferring with you, as we have made certain promises to our competitors which we feel in duty bound to keep, providing they are fair with us. If Mr. Moore can show us at any time where they are cutting prices, you know that we will be at all times willing to give you, or him our best efforts to correct anything that is wrong.

Your co-operation with us along these lines will be greatly appreciated. With kind personal regards, I am,

Yours truly,

JHH–NB
cc C. A. Moore

UNION LETTER SUGGESTING FURTHER CONFERENCE WITH STANDARD.

JHH–185

LOS ANGELES, CALIF., *Nov. 18, 1915.*

Kingman.

C. E. BEACH, Spec. Agt.
Phoenix, Ariz.

I have gone over the Kingman letters and note in several instances, where Mr. Moore sights [cites] where the Standard Oil Co. actually have not acted in good faith and I would suggest that before you go to Kingman, you see Mr. B. and sight [cite] him the cases, and further try to get him to state further just what his Company will agree to do as to the prices at Kingman.

If possible, I would further suggest that you have Mr. Moore at Kingman, also try and arrange to find out if the different parties on whom you were wishing to call were at Kingman, as you no doubt, remember on my last visit Mr. Granger was away which in a manner blocked what we were trying to accomplish and the thought occurred to me that it would be well to make sure this time that all of our parties are in line so as to try and get the matter cleared up satisfactorily to all concerned.

Would you think it advisable to have Mr. B. have a representative of his on the ground so if anything should develop, you could no doubt, get it adjusted satisfactorily? I simply outline this to you after going through what I did so as to avoid a similar experience.

I am enclosing copy of a letter furnished us by Mr. Moore from F. W. Dryden who seems to be buying distillate from the S. O. Co. at a cut price. This might be another case to sight [cite] to Mr. B. for an explanation. After sizing the situation up, there is no question but what our competitor was out of line at times and possibly we were, but we now hope that you and Mr. M. can go on to Kingman and that you will have a settled understanding or as near as possible just what they are going to do at Kingman so that we can line up accordingly.

If the writer can be of any personal assistance to you, do not hesitate to call on us.

Yours truly,

JHH:LV.

UNION LETTER REPORTING PROMISE OF STANDARD TO "LINE UP" ON PRICES.

UNION OIL COMPANY OF CALIFORNIA,
Phoenix, Ariz., Dec. 1, 1915.

(Subject: Kingman Prices.)

C. W. RALPH, Mgr. of Stations,
Los Angeles, California.

Referring again to the matter of Kingman prices, I today had a long talk with Mr. B and he promised me that they would line up with us on the Kingman price inside of ten days, that is, they will advance their list in the town of Kingman where they have been cutting. Of course you understand the last

list that we fixed up at Kingman which Mr. Hull took in with him is all O. K. with the exception of the 1¢ off on Distillate. This was caused by an error of our competitor getting report that price of Distillate should also be advanced when Gasoline advanced on last Saturday the 27th, so by taking the 1¢ off of Distillate column at Kingman, and the different mines, your list will then be correct.

Suppose of course since Mr. Hull has gone into this matter thoroughly with you there is no reason of going into details on this subject, but I wish to advise yourself and Mr. Hull that the proposition looks better to me now than it ever has before, and especially since I have talked with Mr. B.

Will you please advise me as to about what time you will be able to again visit Arizona as I am anxious for you to look over the field at Bisbee before I go any farther with it. You will remember this is the place the Calumet & Arizona mine is located, and we have a very good chance of getting Lubricating business here if we will make arrangements for handling same.

On my trip up north, after leaving Mr. Hull, I visited Flagstaff and found everything running in very good shape, and took Mr. Brewster with me to call on the trade at Winslow. I now have him lined up so that he understands what we expect of him, and I am satisfied that we are doing the right thing by making this change in the work.

Yours very truly,

C. E. BEACH,
Special Agent.

CEB:ES

UNION LETTER SUGGESTING "ANOTHER EFFORT" TO ADJUST PRICES WITH STANDARD.

JHH-854

LOS ANGELES, CALIF., *Dec. 23d, 1915.*

Kingman Prices.

C. E. BEACH, Spec. Agt.
Phoenix, Arizona.

We wired you as follows:

"In reference to your conversation yesterday with Mr. Blue suggest you make another effort with interested parties to get Kingman prices adjusted. If you can not, meet their prices, advising fully."

We attach herewith confirmation.

We know you appreciate we are anxious to get prices adjusted throughout your territory, as per personal talk with Mr. B; and ourselves some time ago. Won't you kindly bring the matter to an issue along lines talked of, advising as soon as you possibly can what arrangement can be made so we will know where we are and can get our prices lined up accordingly.

If we are higher at any points and they will not adjust them in accordance with ours, so advise us and we will arrange ours to meet these conditions.

We hope you will be successful in getting everything straightened out to your satisfaction.

With kind personal regard, we are,

Yours truly,

JHH NB

Manager of Stations.

UNION LETTER DIRECTING AGENT TO MEET STANDARD PRICES.

In Reply Give No CWB 9805

UNION OIL COMPANY OF CALIFORNIA,
Phoenix, Ariz., Dec. 27th, 1915.

354-341-800

C. W. RALPH, Mgr. of Stations.
Los Angeles, Calif.

We are today wiring Mr. A. O. Bowen at Kingman as follows:

"Effective immediately reduce price one cent all deliveries Gasoline, Kerosene, and Distillate at Kingman only. Also refer our telegram twenty-third advancing price Gas Oil. Do not make this advance until further advised."

It seems that the Gas Oil price has been a little bit mixed in our territory of late. While the writer was at Globe our competitors reported a 2¢ raise, which as you know Mr. Morgan made arrangements to meet, and so advised our Kingman station; but this morning we have your letter of the 24th,

JHH—no number, in regard to Mr. Moore talking with Mr. Allen Ware, and making arrangements to raise Gas Oil price at Kingman 1¢ only. I have talked this matter over thoroughly with Mr. B. and he advises that his people have really raised the price to 5½¢ f. o. b. Los Angeles to everybody, and it was his understanding that this raise applied to all the companies, but I gather from your several letters on this question that it was not your understanding that there was this raise at Los Angeles. We appreciate your making arrangements with Mr. Moore for this 1¢ raise at Kingman and trust we can eventually get the other raise of 1½¢ into effect. Would appreciate if you would investigate this Gas Oil price on the Coast and advise just what you think in regard to same as we certainly want to take advantage of every bit of profit we can, but at the same time do not want to jeopardize our business by too much of a raise.

You will also note I have advised Kingman station to meet our competitors' list on Gasoline, Kerosene and Distillate. This was done after talking the matter over thoroughly with Mr. B. He think we justified in doing this as his people at Frisco are slow in adjusting this matter.

We trust this makes the matter clear to you in every way. You can now see what occasioned our telegram of December 23d, which you mentioned in your JHH-300.

Yours very truly,

C. E. BEACH,
Special Agent.

CEB ES.

EXHIBIT 6.

NOTICE OF PRICE CHANGES.

UNION OIL COMPANY OF CALIFORNIA,
El Centro, Cal., October 28, 1915.

Answering letter JHH-126 Oct. 26th. Subject: Advance Refined Oils.

Mr. C. W. RALPH,
Mgr. Stations at Los Angeles.
Att'n Mr. Ralph.

DEAR SIR: Please be advised that Gasoline, Benzine, Naptha and Engine Distillate advanced one cent on October 26th. We received your telegram and followed the advance as soon as we found that it had actually gone into effect. If you will kindly let us have this information as soon as possible in each case, it may be of material benefit to us, as the other fellow has the advantage over us in this respect. In this particular case the Standard Oil Company representatives received this information the previous day and of course took advantage of the condition by notifying all of the trade to fill up at the lower figure. In order to be in the same position, it will be necessary for us to receive this information as soon as possible.

Thanking you, I am
Yours very truly,

F. E. ALBRIGHT,
Special Agent.

FEA:M

EXHIBIT 7.

COMPLAINT OF PRICE CUTTING.

In reply give No. FEA616

UNION OIL COMPANY OF CALIFORNIA,
El Centro, Calif., Aug. 18, 1915.

Answering letter ———. Subject: ———.

Mr. C. W. RALPH,
Mgr. of Stations at Los Angeles, Calif.
Att'n Mr. ———.

DEAR SIR: Confirming phone conversation of this date, would say that the Standard Oil are reported to me as offering the Harry Baum Grocery Company,

at Brawley, two cents off on gasoline. This Company informed me that unless we could meet this price, they would be compelled to make a change. Mr. Baum has been a customer of ours for years and is considered one of our best boosters. He also pays cash at time of delivery, and I would feel very badly if, for any reason, we were to lose him.

I am also informed that the Standard Oil are delivering to Nice Bros. Implement Company and Calipatria Hardware, at Calipatri, at two cents off the list price. Mr. Keck, our truck salesman saw one of the driver's tickets, which was made out without any price being given, but was also shown an invoice from Los Angeles, covering the same delivery, which carried a price of twelve and one-half cents, which is two cents under the market price. None of these three firms has an underground storage tank or pump for filling automobiles.

You spoke to me about seeing the Standard Oil representative in the valley. I have been endeavoring to get hold of him all day, but have been unable to locate him. I wish to say that at other times I have taken matters of this nature up with him, but he has as much as told me to go to thunder and get my information some place else, or words to that effect. He is a young fellow and feels his importance, which is no doubt, responsible for his actions, and were a larger man on the job, perhaps a good many of these complaints might be avoided. I will, however, use my best endeavors to get him to say what he intends to do regarding these cuts.

Hoping that some definite understanding can be arrived at between the two companies regarding the cuts in prices, I am

Yours very truly,

F. E. ALBRIGHT,
Special Agent.

FEA:KCR

P. S.—I succeeded in locating Mr. Griffith this afternoon who told me if their agent at Brawley was making a two cent differential to any concern not having a filling station was doing so without his knowledge.

ALBRIGHT.

EXHIBIT 8.

PRICES ADJUSTED IN VENTURA TERRITORY.

WLS-2951

LOS ANGELES, CALIF. *Dec. 22, 1916*

Ventura Territory Associated Oil Company 1¢ per gallon discount on gasoline.

J. E. BOYES, Office.

We have read your report carefully under date of Dec. 13th and would like to know whether you or Mr. McVean can secure the name of at least one consumer who is buying A. O. gasoline at 1¢ off list.

Mr. Ralph has asked for this information as he has had the subject up with the A. O. Co. in San Francisco and they are asking that we give a specific case so that they can run down the ticket and investigate thoroughly. One name will be just as good as a dozen, so would appreciate it very much if you could secure this information and if possible, the number of the ticket so that we can be very specific in our charge.

Yours truly

WLSd:LV

cc J. M. Geary—The above is in connection with Mr. Hull's letter to you under date of Dec. 22nd, JHH-1765. If Mr. Boyes should secure this information, we are asking that he forward it direct to you or give same to Mr. McVean so that everybody will be informed. You can then give the information to us by answering Mr. Hull's letter under date of Dec. 22nd. The A. O. Co. when informed of this condition at San Francisco by Mr. Ralph stated that they would discontinue the practice at once.

cc A. J. McVean.

EXHIBIT 9.

ANSWER OF H. S. BOTSFORD.

[Letterhead Puente Oil Company.]

LOS ANGELES, CAL.,
October 20, 1921.

FEDERAL TRADE COMMISSION,
MR. HUSTON THOMPSON, *Chairman*,
Washington, D. C.

DEAR SIR: Referring to your inquiry of October 11th and to the certain code message quoted, it is a matter of regret that any importance continues to be attached to this message after the history, which I gave of the incident to your representatives.

There were no officials connected with the circumstances and the incident was used by me solely in furtherance of a contention, which I had with President Schlacks. Your investigators will probably recall that some time prior to the dates referred to in the telegram market prices of crude oil in California had advanced without a corresponding increase in the price of gasoline. I had urged Mr. Schlacks that it was entirely consistent that we disregard the published list of gasoline and increase our price to correspond with the advance in crude, particularly as we had a high grade commodity. He had not given me his decision on this matter at the time in question.

We deal quite largely with the Standard Oil Company at San Francisco and in connection with our regular transactions, I took occasion to comment, jokingly, on the discrepancy in the crude and gasoline markets. To this the Standard Oil representative, not an official, replied in a similar vein to the effect that there were no strings on the market, to advance the price ourselves. Upon my return to Los Angeles a few days later, the remark was quoted to me as having been made by a Standard Oil representative here, whom I do not know, and which remark the same attitude was taken. I did not hear this remark myself.

These two incidents occurred to me as affording the opportunity to press my point with Mr. Schlacks and any possible misconception can be attributed to the limitations of the commercial code, which made it impossible for me to more accurately convey my meaning.

As a matter of subsequent history, the Board of Public Utilities of the City of Los Angeles later in the season requested the gasoline marketers to advance their prices so as to permit supplies to be shipped in from the mid-continent and relieve the local shortage. I cite this fact in support of my contention that our published market on gasoline was too low, and of this I was so thoroughly convinced that I used what otherwise would have been an absolutely unimportant incident in an attempt to further my cause.

Respectfully yours,

(Signed) H. S. BOTSFORD.

HSB: GAH

EXHIBIT 10.

UNION OIL CO. CLASSIFICATION OF CUSTOMERS.

UNION OIL COMPANY OF CALIFORNIA.

Station Department.

Bulletin No. CWR-126 LOS ANGELES, CAL. *Dec. 11, 1915.*
Subject: Tank Wagon Market Prices For Mr. A. F. Spooner.
To all Special Agents Southern District.

Gentlemen: the Special Agents at

Los Angeles	Ventura
Burbank	Pasadena
Riverside	San Pedro
El Centro	Santa Ana

will be governed by the following instructions in marketing our products in their territory.

PHOENIX AND SAN DIEGO WILL CONTINUE TO MARKET IN ACCORDANCE WITH THE LAST INSTRUCTIONS ISSUED THEM.

Engine distillate.

Make no further contracts on Engine Distillate. Sell at our open market price date of delivery, with the following exceptions:

An allowance of ¼¢ per gallon off our open market price date of delivery will be made to the following:

Cities, towns and Municipalities.
Tuna Exchange and Packing Houses.
Garages and filling stations.
Carload lots drums or barrels, or in tank cars.

One (1¢) cent per gallon off our open market price date of delivery will be made to the following:

Government, State and Peddlers.

Deliveries to Tractors and private boat owners will be made at OPEN MARKET PRICE DATE OF DELIVERY.

Terms: 1% Discount if account paid by the 10th of month following delivery.

Gasoline.

Two (2¢) cents per gallon off our open market price date of delivery to the following:

Garages, Filling Stations, Peddlers, Tank car shipments, carload lots—consisting of drums or barrels—shipped to garages and to such sellers of gasoline who operate portable buggies or curb filling stands.

One (1¢) cent per gallon off our open market price to the following:

Cities, Counties, States, Government, Towns, and (in iron barrels or drums) mixed carloads, consisting of gasoline with other products.

Trucks, and cars used for strictly commercial purposes.

Jitney Busses.

Grocery and Hardware Stores.

Industrial concerns (Those engaged in Man'f'g. business).

Open market price on gasoline.

Tractors and private cars not used for commercial purposes and private boats.

Terms: Tank wagon deliveries NET CASH 30 days no discount.

On straight carload shipments consisting exclusively of gasoline in iron barrels or drums or tank cars, 30 days net, 1% discount if account is paid by the 10th of month following delivery.

Gasoline in barrels or drums with other commodities 30 days net, or 2% discount if account paid by 10th of month following delivery.

We will positively not make deliveries to private parties for the accommodation of a garage or filling station. In the past occasional deliveries have been made to this class of trade, and the charge has been against the garage or filling station. This will not be done in the future.

Contracts.

We will not make contracts on gasoline or distillate covering any stated period of time.

Kerosene oil.

Open market price date of delivery to all buyers excepting the following:

One (1¢) cent per gallon off our market price date of delivery to peddlers who call at our plant for delivery. One half (½¢) cent off when deliveries are made by us from our wagon equipment to the peddlers.

In tank cars or in iron packages in straight or mixed carload lots one half (½¢) cent per gallon off the market date of shipment.

Terms on kerosene: Tank wagon deliveries NET CASH 30 days.

Straight carloads 1% discount if account paid by the 10th of month following delivery, 30 days net.

Mixed cars 2% discount if account paid by 10th of month following delivery, 30 days net.

Gas oil and stove oil.

There seems to be some misunderstanding regarding terms on these commodities. Some are 30 days net and without discount.

The above is effective on receipt of this bulletin.

C. W. RALPH, *Manager of Stations.*

CWR–FWM

EXHIBIT 11.

STANDARD OIL CO., CLASSIFICATION OF CUSTOMERS.

LOS ANGELES, CAL.,
December 15, 1915.

DEAR SIR: At some points some of our Agents have misunderstood our rulings on classification of trade and the differentials that apply thereto, and in order that there should be no misunderstanding in the future, I am pleased to give you below the following:

	Red Crown Gasoline	Engine Distillate
	per gallon	
	Off list at date of delivery	
Garages	2¢	½¢
Filling Stations	2	½

(By filling stations you will interpret our ruling to mean regular equipped service stations, as well as Motorcycle Agencies and Repair Shops, Automobile Agencies, Accessory Stores, Hardware Stores, Grocery Stores, all of which have either a self-measuring pump or sidewalk buggy on the outside of their building so as to serve Gasoline direct from the pump to the machine).

Hardware Stores	1¢ without S. M. Pump	List
Grocery Stores	1 " " "	List
General Merchandise Stores	1 " " "	List
Industrial Plants	1	List
Motor Truck Operators	1	List
Stage Lines	1	List
Taxicab Companies, etc.,	1	List
Municipalities consisting of towns, city and county business	1	½
Government and State	1	1

To such trade as tractor operators, pumping plants of all kinds and sizes, auto owners and all trade not listed above, will be list price on Gasoline, and list price on Engine Distillate.

The above ruling is mandatory and must be put into effect at once with exception of where we have contracts out that are below these prices, and if there are any contracts in effect in your field, kindly send us a list of them so we can check them with our office records, and this at your earliest convenience.

Kindly acknowledge receipt.

Yours truly,

EXHIBIT 12.

LETTER IN DAN EMMET CASE.

In reply give No. M–3004

UNION OIL COMPANY OF CALIFORNIA,
Ventura, Calif., Dec. 23, 1915.

S. O. Co. Prices.

Mr. C. W. RALPH, *Mgr. of Stations, Los Angeles, Calif.*
Attention—J. H. Hall

Upon receipt of your bulletin CWR–126, December 11th, covering tank wagon market prices, we put same into effect immediately. Since that time we have

had reason to believe that the S. O. Company is not working on the same schedule, but it was not until yesterday that we were able to secure positive evidence of the fact as follows:

On December 21st, our salesman called on Mr. Dan Emmet, a regular customer of ours on both refined and lubricating products, and was informed by Mr. Emmet that the S. O. Company's Agent at Oxnard had told him that there would be no change in the price until the first of the year, and quoted engine distillate at 9¢ (our price 9½¢) and gasoline at 15¢ (our price 16¢). Mr. Emmet stated that arrangements had been made for the S. O. Company to make delivery to him on the 22nd. Mr. Emmet has been a good friend of ours and upon the promise that he would let us see the delivery ticket of the S. O. Company, we concluded to make a test case of this and did not try to take this order at a cut price. The S. O. Company delivered to Mr. Emmet, yesterday 25 gallons of Red Crown at 15¢ and 200 gallon of engine distillate at 9¢ on ticket 307988, dated December 22nd. A peculiar thing about it is that the ticket is made out in the name of F. O. Wadleigh with whom we understand the S. O. Company has a contract. This ticket was seen by our Mr. Welch. I do not understand this brand of slight [sleight] of hand, but the fact remains that Mr. Emmet received his goods at the time and at the price promised to him and of which we were informed in advance.

Under the old ruling, neither Mr. Wadleigh or Mr. Emmet would be entitled to one cent discount on gasoline, they having no commercial car.

On the strength of the above, together with similar reports that have come to me, I have, in order to protect our business, given instructions to our salesmen to deliver distillate to anybody having a tractor or caterpillar at ½¢ below list until further notice. I feel that we cannot, in justice to ourselves, maintain the list price to Caterpillars while our competitor is out gunning for our best trade at the old discount. It looks very much as if they had postponed putting the new schedule into effect until the first of the year at least, and in the meantime if we were maintaining our list prices, they would get our best business away from us and we would have to fight the battle all over again to get it back.

If you have any advice in this connection, I will be glad to hear from you.

Very truly yours

(Signed) A. J. McVEAN *Special Agent.*

P. S. Since writing the above, I learned that while the ticket for Mr. Emmet is made out in the name of F. O. Wadleigh, there is a notation on same to charge to Dan Emmet. It looks very much like this oil was delivered under Mr. Wadleigh's contract, although Mr. Emmet has no knowledge of any such arrangement and the result is the same in any case. Our friend, the enemy, is certainly caught with the goods.

cc N. S. A.-1/4/16

EXHIBIT 13.

PRICES TO CAFÉS IN IMPERIAL VALLEY.

CC J. H. HULL
W. L. STANDARD
CWB-444

LOS ANGELES, CAL., *Jan. 30, 1917.*

Refined Oil Conditions El Centro Territory—Restaurants and Cafes.

F. E. ALBRIGHT, *Dist. Sales Manager*
El Centro, Cal.

During writer's personal discussion with you, you will recall that we took up the matter of price which was being made to restaurants on engine distillate. It was writer's understanding that you had done everything possible to maintain your price but that some months ago it developed that you were gradually losing all of your restaurant accounts. You finally developed through the Fritz Cafe of Calipatria that the S. O. Company were giving these cafes and restaurants ½¢ off on engine distillate deliveries. You will recall that you

advised you waited three weeks before you met this cut in price; having satisfied yourself that the S. O. Company were allowing ¼¢ off you met the competition, it being understood, however, that both you and your competitor were demanding cash on delivery in order to justify the ¼¢ allowance.

In Mr. J. T. Black's letter to you of Nov. 12, to which was attached the S. O. Company's ticket from Fred Palmer, Calipatria, Mr. Black stated that the cafe owners feared to give us their tickets as by so doing they would stand a chance of losing the cut price. We now develop that for eighteen consecutive months the S. O. Company have been selling cafes and restaurants engine distillate ¼¢ off the market, date of delivery. They claim that they made this concession in order to meet your competition. They submitted a letter written to their Los Angeles office by their El Centro representative during October, 1916, in which it was reported that your representatives were allowing ¼¢ off on distillate to cafes in the Imperial Valley and they referred to the case of the Main Chop House and the Guy McMain bakery, El Centro, to whom you were selling distillate at ¼¢ off during the latter part of 1916. They also refer to the Valley Cafe at Imperial to which it is claimed you made deliveries prior to November 6.

We attach hereto a list of cafes and restaurants in your territory and will request that you kindly forward us all the tickets covering deliveries which you made to said cafes during the year 1916, or, if the original tickets are not available, then send us copies.

It is further claimed that the Guy McMain bakery do not operate trucks and thus are entitled to no discount. We would like very much to clean up this situation and know of no reason why we should not clean house effective February 1st. You will, of course, appreciate that if any of these cafes or restaurants are operating commercial vehicles for commercial purposes they are thus entitled to ¼¢ off the market.

Yours very truly,

C. W. RALPH,
By R. W. M., *Manager of Stations.*

CWR EL
CC JH HULL
W L Standard.

EXHIBIT 14.

CALIFORNIA ANTI-TRUST LAW

California Anti-Trust Law (Statutes, 1907, pp. 984-986)

CHAPTER 590.

An act to define trust and to provide for criminal penalties and civil damages, and punishment of corporations, persons, firms, and associations, or persons connected with them, and to promote free competition in commerce and all classes of business in this state.

[Approved March 23, 1907]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. A trust is a combination of capital, skill or acts by two or more persons, firms, partnerships, corporations or associations of persons, or of any two or more of them for either, any or all of the following purposes:

1. To create or carry out restrictions in trade or commerce.

2. To limit or reduce the production, or increase or reduce the price of merchandise or of any commodity.

3. To prevent competition in manufacturing, making, transportation, sale or purchase of merchandise, produce, or any commodity.

4. To fix at any standard or figure, whereby its price to the public or consumer shall be in any manner controlled or established, any article or commodity of merchandise, produce or commerce intended for sale, barter, use or consumption in this state.

5. To make or enter into or execute or carry out any contracts, obligations or agreements of any kind or description, by which they shall bind or have bound themselves not to sell, dispose of or transport any article or any commodity or any article of trade, use, merchandise, commerce or consumption

below a common standard figure, or fixed value, or by which they shall agree in any manner to keep the price of such article, commodity or transportation at a fixed or graduated figure, or by which they shall in any manner establish or settle the price of any article, commodity or transportation between them or themselves or others, so as to directly or indirectly preclude a free and unrestricted competition among themselves, or any purchasers or consumers in the sale or transportation of any such article or commodity, or by which they shall agree to pool, combine or directly or indirectly unite any interests that they may have connected with the sale or transportation of any such article or commodity, that its price might in any manner be affected. Every such trust as is defined herein is declared to be unlawful, against public policy and void.

Sec. 2. For a violation of any of the provisions of this act by any corporation or association mentioned herein, it shall be the duty of the attorney-general or the district attorney of the proper county, to institute proper suits or quo warranto proceedings in any court of competent jurisdiction for the forfeiture of its charter rights, franchises or privileges and powers exercised by such corporation or association, and for the dissolution of the same under the general statutes of the state.

Sec. 3. Every foreign corporation, as well as every foreign association, exercising any of the powers, franchises or functions of a corporation in this state, violating any of the provisions of this act, is hereby denied the right and prohibited from doing any business in this state, and it shall be the duty of the attorney-general to enforce this provision by bringing proper proceedings by injunction or otherwise. The secretary of state shall be authorized to revoke the license of any such corporation or association heretofore authorized by him to do business in this state.

Sec. 4. Any violation of either or all of the provisions of this act shall be and is hereby declared a conspiracy against trade, and any person who may become engaged in any such conspiracy or take part therein, or aid or advise in its commission, or who shall as principal, manager, director, agent, servant or employee, or in any other capacity, knowingly carry out any of the stipulations, purposes, prices, rates, or furnish any information to assist in carrying out such purposes, or orders thereunder or in pursuance thereof, shall be punished by a fine of not less than fifty ($50) dollars nor more than five thousand ($5,000) dollars, or be imprisoned not less than six months nor more than one year, or by both such fine and imprisonment. Each day's violation of this provision shall constitute a separate offense.

Sec. 5. In any indictment, information or complaint for any offense named in this act, it is sufficient to state the purpose or effects of the trust or combination, and that the accused is a member of, acted with or in pursuance of it, or aided or assisted in carrying out its purposes without giving its name or description, or how, when and where it was created.

Sec. 6. In prosecutions under this act, it shall be sufficient to prove that a trust or combination, as defined herein, exists, and that the defendant belonged to it, or acted for or in connection with it, without proving all the members belonged to it, or proving or producing any article of agreement, or any written instrument on which it may have been based; or that it was evidenced by any written instrument at all. The character of the trust or combination alleged may be established by proof of its general reputation as such. In case any court of record, or in vacation any judge of said court in which is pending any civil, criminal or other action or proceeding brought or prosecuted by the attorney-general or any district attorney for the violation of any of the provisions of this act or in any action or proceeding for the violation of the law of this state, against conspiracy or combination in restraint of trade so orders, no person so ordered shall be excused from attending, testifying or producing books, papers, schedules, contracts, agreements or any other document in obedience to the subpoena or under the order of such court or of any commissioner or referee appointed by said court to take testimony or any notary public or other person or officer authorized by the laws of this state to take depositions when the order made by such court or judge thereof includes a witness whose deposition is being taken before such notary public or other officer on the ground or for the reason that the testimony or evidence required of him may tend to criminate him or subject him to any penalty; but no individual shall be prosecuted or subjected to any penalty for or on account of any transaction, matter or thing concerning which he may so testify or produce evidence, documentary or otherwise, before any such court, person or officer.

SEC. 7. Each and every firm, person, partnership, corporation, or association of persons, who shall in any manner violate any of the provisions of this act, shall for each and every day that such violations shall be committed or continued, after due notice given by the attorney-general or any district attorney, forfeit and pay the sum of fifty ($50) dollars, which may be recovered in the name of the people of the State of California, in any county where the offense is committed, or where either of the offenders resides; and it shall be the duty of the attorney-general, or the district attorney of any county on the order of the attorney-general, to prosecute for the recovery of the same. When the action is prosecuted by the attorney-general against a corporation or association of persons, he may begin the action in the supreme court of the county in which defendant resides or does business.

SEC. 8. That any contract or agreement in violation of the provisions of this act, shall be absolutely void and shall not be enforceable either in law or in equity.

SEC. 9. That the provisions hereof shall be held cumulative of each other and of all other laws in any way affecting them now in force in this state.

SEC. 10. It shall not be lawful for any person, partnership, association or corporation, or any agent thereof, to issue or to own trust certificates, or for any person, partnership, association or corporation, agent, officer or employee, or the directors or stockholders of any corporation, to enter into any combination, contract, or agreement with any person or persons, corporation, or corporations, or with any stockholder or director thereof, the purpose and effect of which combination, contract or agreement shall be to place the management or control of such combination or combinations, or the manufactured product thereof, in the hands of any trustee or trustees with the intent to limit or fix the price or lessen the production and sale of any article of commerce, use or consumption, or to prevent, restrict or diminish the manufacture or output of any such article, and any person, partnership, association or corporation that shall enter into any such combination, contract or agreement for the purpose aforesaid shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not less than fifty dollars, nor more than five thousand dollars.

SEC. 11. In addition to the criminal and civil penalties herein provided, any person who shall be injured in his business or property by any other person or corporation or association or partnership, by reason of anything forbidden or declared to be unlawful by this act, may sue therefor in any court having jurisdiction thereof in the county where the defendant resides or is found, or any agent resides or is found, or where service may be obtained, without respect to the amount in controversy, and to recover twofold the damages by him sustained, and the costs of suit. Whenever it shall appear to the court before which any proceeding under this act may be pending, that the ends of justice require that other parties shall be brought before the court, the court may cause them to be made parties defendant and summoned, whether they reside in the county where such action is pending or not.

SEC. 12. The word "person" or "persons" whenever used in this act, shall be deemed to include corporations, partnerships and associations existing under or authorized by the laws of this state or any other state, or any foreign country.

EXHIBIT 15.

AMENDMENT TO CALIFORNIA ANTI-TRUST LAW.

Amendment to California Anti-Trust Law. (Statutes, 1909, pp. 593-594)

CHAPTER 362.

An act to amend section one of an act entitled "An act to define trust and to provide for criminal penalties and civil damages, and punishment of corporations, persons, firms, and associations, or persons connected with them, and to promote free competition in commerce and all classes of business in this state," approved March 23, 1907, and to add a new section thereto to be numbered two and one-half relating to competition on trade and industry, and to add a new section thereto to be numbered section thirteen relating to labor.

[Approved March 20, 1909.]

The people of the State of California, represented in senate and assembly, do enact as follows:

SECTION 1. Section one of an act entitled "An act to define trust and to provide for criminal penalties and civil damages, and punishment of corporations, persons, firms, and associations, or persons connected with them, and to promote free competition in commerce and all classes of business in this state," is hereby amended to read as follows:

SECTION 1. A trust is a combination of capital, skill or acts by two or more persons, firms, partnerships, corporations or associations of persons, or of any two or more of them for either, any or all of the following purposes:

1. To create or carry out restrictions in trade or commerce.

2. To limit or reduce the production, or increase the price of merchandise or of any commodity.

3. To prevent competition in manufacturing, making, transportation, sale or purchase of merchandise, produce or any commodity.

4. To fix at any standard or figure, whereby its price to the public or consumer shall be in any manner controlled or established, any article or commodity of merchandise, produce or commerce intended for sale, barter, use or consumption in this state.

5. To make or enter into or execute or carry out any contracts, obligations or agreements of any kind or description, by which they shall bind or have bound themselves not to sell, dispose of or transport any article or any commodity or any article of trade, use, merchandise, commerce or consumption below a common standard figure, or fixed value, or by which they shall agree in any manner to keep the price of such article, commodity or transportation at a fixed or graduated figure, or by which they shall in any manner establish or settle the price of any article, commodity or transportation between them or themselves and others, so as to directly or indirectly preclude a free and unrestricted competition among themselves, or any purchasers or consumers in the sale or transportation of any such article or commodity, or by which they shall agree to pool, combine or directly or indirectly unite any interests that they may have connected with the sale or transportation of any such article or commodity, that its price might in any manner be affected. Every such trust as is defined herein is declared to be unlawful, against public policy and void, *provided* that no agreement, combination or association shall be deemed to be unlawful or within the provisions of this act, the object and business of which are to conduct its operations at a reasonable profit or to market at a reasonable profit those products which cannot otherwise be so marketed, *provided further*, that it shall not be deemed to be unlawful, or within the provisions of this act, for persons, firms or corporations, engaged in the business of selling or manufacturing commodities of a similar or like character, to employ, form, organize or own any interest in any association, firm or corporation, having as its object or purpose the transportation, marketing or delivery of such commodities.

SEC. 2. A new section is hereby added to said act to be numbered section two and one-half and to read as follows:

SEC. 2½. It shall be lawful to enter into agreements or form associations or combinations, the purpose and effect of which shall be to promote, encourage or increase competition in any trade or industry, or which are in furtherance of trade.

SEC. 3. A new section is hereby added to said act to be numbered section thirteen and to read as follows:

SECTION 13. Labor whether skilled or unskilled is not a commodity within the meaning of this act.

SEC. 4. This shall take effect immediately.

EXHIBIT 16.

CALIFORNIA SUPREME COURT ANTI-TRUST DECISION.

PEOPLE v. H. JEVNE CO. et al. (Cr. 2208). (Supreme Court of California. Jan. 28, 1919). 178 Pacific Reporter.

* In Bank.

Appeal from Superior Court, Los Angeles County; Frederick W. Houser, Judge.

The H. Jevne Company and others were convicted of a conspiracy against trade. From a judgment of conviction and an order denying their motion for new trial, they appeal. Affirmed.

R. R. Young and Goodwin & Mengrage, all of Los Angeles, for appellants.
U. S. Webb, Atty. Gen., and Joseph L. Lewinsohn, Deputy Atty. Gen., for the People.

SLOSS, J. The defendants appeal from a judgment convicting them of a "conspiracy against trade, as defined by the statute of 1907, commonly known as the Cartwright Act. Stats. 1907, p. 394; amended, Stats. 1909, p. 502. They also appeal from an order denying their motion for a new trial."

* * * * * * *

The indictment was in three counts, by means of which the pleader undertook to set up different statements of the same offense. Briefly stated, the charge was that the defendants, who were severally engaged, in the business of baking bread and selling the same at wholesale to retail dealers in the county of Los Angeles, made and entered into a trust, combination, and conspiracy with each other and with other persons, to fix the price at which retail bread dealers should sell 24-ounce loaves of bread to consumers, such price being fixed at 15 cents per loaf, and to require and force the retail dealers to whom bread was sold by them to sell to the public at a price of not less than 15 cents for each 24-ounce loaf; and that said defendants further agreed that they would refuse to sell any bread to any retail dealer who refused to maintain said price. The indictment sets forth the commission of various acts in furtherance of such agreement.

The present appeals were first heard in the District Court of Appeal for the Second Appellate District, and the judgment and order appealed from were there affirmed. An order was subsequently made transferring the cause to this court for hearing and determination.

In the argument before the Court of Appeal, counsel for the defendants directed their efforts, in large part, to an attack upon the constitutionality of the act under which the prosecution was had. That court gave full consideration to the points made in this regard, and answered them to such effect that the appellants, in seeking a hearing in this court, abandoned their former position and conceded the validity of the statute. We may therefore omit any discussion of this question, which was one of the principal points of contention on the earlier presentation of the appeal.

It is also unnecessary, for the purposes of the present case, to follow counsel into another field of debate which is treated with some elaboration in the briefs. Much is there said regarding the proper construction of the act. But the act, however it be interpreted, does undoubtedly prohibit, subject, of course, to the provisos of the amendment of 1909, any combination of capital, skill, or acts by two or more persons for the purpose of increasing the price of any commodity (section 1, subd. 2), or fixing at any figure, whereby its price to the consumer shall be controlled, any article intended for sale or consumption (section 1, subd. 4), or to make or carry out any agreements by which they shall bind themselves to keep the price of such article at a fixed or graduated figure (section 1, subd. 5). Nor will it be doubted that all or, at least, some of these prohibitions are violated by an agreement between wholesale bakers, whereby they fix the retail price of bread to be sold by them to retailers at 15 cents per loaf, and agree that they will not sell bread to any retailer who does not maintain such price. The making and carrying out of such a combination was clearly and directly charged in the indictment, and it is not claimed that there was a lack of evidence to support the accusation.

With the elimination of the questions to which we have referred, little remains to be considered, except the effect of the above-quoted proviso added to section 1 by the amendment of 1909. That proviso declares that no agreement, combination, or association shall be deemed to be unlawful 'the object and business of which are to conduct its operations at a reasonable profit or to market at a reasonable profit those products which cannot otherwise be so marketed.'

The appellants contend that the indictment was defective, and that their demurrer thereto should have been sustained, for the want of an allegation that the combination or agreement set forth did not come within the permissive scope of this proviso. There is no uncertainty in the law governing the necessity of alleging, in an indictment or information, that the accused does not come within exceptions or provisos contained in the statute authorizing the prosecution. As is frequently the case, the difficulty lies rather in the application than in the enunciation of the rule. The question was carefully considered, and clearly expounded, in Ex parte Hornef, 154 Cal. 803, 97 Pac. 881. It was there said:

"Such exceptions and provisos were to be negatived in the pleading only where they are descriptive of the offense or define it, and that where they afford matter of excuse merely, they are to be relied on in defense."

Hornet had been prosecuted for practicing dentistry without the license required by the act of 1901. Stats. 1901, p. 504. By a proviso in section 1 of that act it was declared that the requirement of a license was not to apply to dentists who had the right to practice at the time of the passage of the act. The holding was that it was not necessary to allege in the complaint that the accused was not within the class so excepted. Similarly, it has been held that an indictment for bigamy need not negative the existence of facts making applicable a proviso that the statute shall not extend to a person marrying without knowledge that a former husband or wife, who has been absent from the state for a given number of years is still alive (State v. Abbey, 29 Vt. 60, 67 Am. Dec. 754; State v. Gallagher, 20 R. I. 260, 38 Atl. 655; People v. Priestley, 17 Cal. App. 171, 118 Pac. 965); that an indictment for unlawful sale of certain drugs need not negative an exception in favor of druggists selling on a physician's prescription (State v. Ah Chew, 16 Nev. 50, 40 Am. Rep. 486); and that it is not necessary to exclude the exception in an accusation under a statute making it an offense to engage in labor on Sunday, with the proviso that the act shall not extend to those who conscientiously observe the seventh day of the week as the Sabbath. Billigheimer v. State, 32 Ohio St. 435. These cases, and others of like purport, are cited and discussed in Ex parte Hornet, supra. On the other hand, it is essential, in a charge of rape, to allege that the female upon whom the act was accomplished was not the wife of the perpetrator (People v. Miles, 9 Cal. App. 312, 101 Pac. 825), or, in a charge of the offense described in section 288 of the Penal Code, to aver that the act was not one of those "constituting other crimes provided for in part two of this Code" (People v. Grinnell, 9 Cal. App. 238, 98 Pac. 681). In each of the last two cases the exception manifestly formed a part of the definition of the offense. Whether a particular accusation falls within this class or that illustrated by Ex parte Hornet is often a nice question. In the present instance, we agree with the District Court of Appeal in the view that the proviso under discussion does not go to the definition of the offense, but that it creates rather an exception, exempting from the operation of the general terms of the statute persons who have committed the prohibited act for a specified purpose. The existence of such purpose affords, therefore, "matter of excuse merely," and is to be relied on in defense.

The appellants contend, further, that the evidence is insufficient to support the implied finding that the combination or agreement charged was not one of those excluded from the purview of the act by the proviso of 1909. This issue was presented to the jury under instructions directing them to return a verdict of not guilty if they should find that the combination or agreement charged had been made with one or the other of the objects specified in the amendment. The record shows that the defendants fixed a wholesale price of 12 cents per loaf. This left to the retailers, selling at 15 cents, a profit of 3 cents per loaf, or 20 per cent. of their selling price. Much evidence was presented by the defendants to show that this rate of profit is little, if at all, more than the actual expense of conducting the retail trade, and that the profit to the retailer could not, accordingly, have been an unreasonable one. If we assume, as the appellants contend, that the evidence on this point was without conflict, the showing still fails to meet the requirements of the case. It is to be remembered that the defendants are wholesale dealers in bread. They are charged with combining to fix, not the price which they, as such wholesalers, were to receive for their product, but that to be obtained from the ultimate consumer by the retailers to whom they sold. The proviso added to the statute authorizes an agreement or combination with the object of conducting its operations at a reasonable profit, or marketing certain products at a reasonable profit. This provision manifestly contemplates a profit sought by the persons entering into the combination not the profit of their customers or vendees. As applied to the case at bar, the amendment goes no further than to authorize wholesale dealers in bread to combine for the purpose of realizing a reasonable profit in their own dealings. It does not assume to legalize a combination or agreement entered into by them with the object of securing a reasonable profit to the retailers who may buy from them. It may be that the maintenance of a fixed retail price will have a tendency to so stabilize trade conditions as to better enable the wholesalers

to realize a fair profit on their own transactions. But if such an inference may be drawn, the evidence in this case does not compel it. It cannot be said that the testimony shows conclusively that the fixing of a retail price of 15 cents per loaf was a necessary or proper step in accomplishing the purpose of securing a reasonable profit to the wholesalers as such.

There is no occasion to consider whether the evidence warrants the conclusion that the price of 12 cents, fixed by the defendants as the charge to be made by them to retailers, afforded any more than a reasonable profit on their wholesale transactions. As we have pointed out, the indictment was not based upon the fixing of a price at which they were to sell at wholesale, but upon the establishment of a retail price of 15 cents to which their customers were to be compelled to conform. It may have been proper, however, for the defendants to show the cost of manufacture, as one of the elements which the jury might consider in determining the ultimate question of the purpose of the combination or agreement charged. The defendants went into this matter very fully in their defense. If was not error, therefore, to permit the prosecution, on rebuttal, to show that the cost of production of other bakers, under more or less parallel conditions, was less than the figure shown by the testimony of the defendants. If this inquiry was immaterial, it was opened up by the defendants themselves, and they could not preclude the prosecution from meeting the showing which they had voluntarily made. 4 C. J. 703, 704. At any rate, the rulings complained of could not, in view of the nature of the charge, have worked any substantial prejudice.

The judgment and the order denying a new trial are affirmed.

We concur: ANGELLOTTI, C. J.; MELVIN, J.; WILBUR, J.; RICHARDS, Judge pro tem.

EXHIBIT 17.

CALIFORNIA LAWS RELATING TO UNFAIR COMPETITION AND DISCRIMINATION.

California Law Relating to Unfair Competition and Discrimination. (Statutes, 1913, pp. 508-510.)

CHAPTER 278.

An act relating to unfair competition and discrimination, making certain unfair and discriminatory practices unlawful, defining the duties of the attorney general in regard thereto, declaring certain contracts illegal and forbidding recovery thereon, providing for actions to enjoin unfair competition and discrimination and to recover damages therefor, making the violation of the provisions of this act a misdemeanor and providing penalties.

[Approved June 10, 1913. In effect August 10, 1913.]

The people of the State of California do enact as follows:

SECTION 1. It shall be unlawful for any person, firm or corporation, doing business in the State of California and engaged in the production, manufacture, distribution or sale of any commodity of general use or consumption, or the product or service of any public utility, with the intent to destroy the competition of any regular established dealer in such commodity, product or service, or to prevent the competition of any person, firm, private corporation, or municipal or other public corporation, who or which, in good faith, intends and attempts to become such dealer, to discriminate between different sections, communities or cities or portions thereof of this state, by selling or furnishing such commodity, product or service at a lower rate in one section, community or city, or any portion thereof, than in another, after making allowance for difference, if any, in the grade, quality or quantity, and for cost differences between such places due to distance from the point of production, manufacture or distribution and expense of distribution and operation. This act is not intended to prohibit the meeting in good faith of a competitive rate, or to prevent a reasonable classification of service by public utilities for the purpose of establishing rates. The inhibition hereof against locality discrimination shall embrace any scheme of special rebates, collateral contracts or any device of any nature whereby such discrimination is, in substance or fact, effected in violation of the spirit and intent of this act.

Any person, who, either as director, officer or agent of any firm or corporation or as agent of any person, violating the provisions hereof, assists or aids, directly or indirectly, in such violation shall be responsible therefor equally with the person, firm or corporation for whom or which he acts. In the prosecution of any person as officer, director or agent it shall be sufficient to allege and prove the unlawful intent of the person, firm or corporation for whom or which he acts.

Sec. 2. If complaint shall be made to the attorney general that any corporation is violating section one of this act, he shall investigate such complaint and if, in his opinion, sufficient grounds exist therefor, he shall prosecute an action in the name of the people of the State of California in the proper court to annul the charter or revoke the license of such corporation to do business in this state, as the case may be, and to permanently enjoin such corporation from doing business in this state; and if in such action the court shall find that such corporation is violating this act, it may enjoin said corporation from doing business in this state for such time as the court shall order, or may annul the charter, or revoke the license of such corporation, and permanently enjoin it from transacting business in the state.

Sec. 3. Any contract, express or implied, made by any person, firm or corporation in violation of the provisions of section one of this act for the sale or furnishing of any commodity, product or service at a rate greater than the lowest rate charged therefor by such person, firm or corporation in any other section, community or city in this state, after making allowance for the cost differences between such place and the place where under the contract, such commodity, product or service is delivered or furnished and for differences, if any, in grade, quality or quantity, is declared to be an illegal contract, and no recovery thereon shall be had.

Sec. 4. Any person, firm, private corporation or municipal or other public corporation, may maintain an action to enjoin a continuance of any act or acts in violation of section one of this act and, if injured, thereby, for the recovery of damages. If, in such action, the court shall find that the defendant is violating section one of this act, it shall enjoin the defendant from a continuance thereof; it shall not be necessary that actual damage to the plaintiff be alleged or proved. In addition to such injunctive relief, the plaintiff in said action shall be entitled to recover from the defendant three times the amount of the actual damages, if any, sustained.

Sec. 5. Any person, whether as principal, agent, officer or director, for himself or for another person, or for any firm or corporation, or any corporation, who or which shall violate section one of this act, is guilty of a misdemeanor and upon conviction thereof, shall, if a person, be punished by a fine of not exceeding one thousand dollars, or by imprisonment in a county jail not exceeding one year, or by both such fine and imprisonment, and, if a corporation, by a fine of not more than five thousand dollars.

Sec. 6. If any section, sentence, clause or phrase of this act is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of the act. The legislature hereby declares that it would have passed this act, and each section, sentence, clause or phrase thereof, irrespective of the fact that any one or more other sections, sentences, clauses or phrases be declared unconstitutional. The remedies herein prescribed are cumulative and in addition to the remedies prescribed by the public utilities act for discriminations by public utilities. If any conflict shall arise between this act and the public utilities act, the latter shall prevail.

Sec. 7. The legislature declares that the purpose of this act is to safeguard the public against the creation or perpetuation of monopolies and to foster and encourage competition, by prohibiting unfair and discriminatory practices by which fair and honest competition is destroyed or prevented. The act shall be liberally construed that its beneficial purposes may be subserved.

EXHIBIT 18.

FORMER MEMBERS OF THE INDEPENDENT PETROLEUM MARKETERS' ASSOCIATION.

Name.	Address.	Joined.	Resigned.
Austin, Bryant & Carter	Los Angeles	August, 1917	Feb., 1918
Do	do	Mar., 1919	Nov., 1919
California Oil & Asphalt Co	do	Apr., 1918	Oct., 1920
Golden State Oil Co	do	Feb., 1917	May, 1920
G. E. Gibson Co	do	May, 1917	June, 1918
Jordan Oil Co	do	Nov., 1916	Aug., 1917
Olinda Gasoline Co	do	Feb., 1915	Oct., 1918
Pamela Oil Co	do	Feb., 1916	June, 1920
Pinal-Dome Oil Co	do	Feb., 1915	July, 1917
Panama Lubricants Co	do	Jan., 1917	April, 1920
Do	do	Jan., 1919	Sept., 1920
Royal Dutch Gasoline Co	do	Feb., 1915	July, 1920
Rancho-La Brea Oil Co	do	Apr., 1916	June, 1918
Service Oil & Asphalt Co	do	Feb., 1915	July, 1918
Southern Refining Co	do	Feb., 1915	May, 1918
Two Boys Oil Co	do	Feb., 1915	Oct., 1918
Western Oil Co	do	Feb., 1915	Aug., 1917
Yosemite Oil Refining Co	do	Feb., 1915	Feb., 1918

EXHIBIT 19.

OFFICERS AND DIRECTORS OF THE ASSOCIATION, JANUARY 18, 1921.

Officers.

G. L. Holton (Turner Oil Co. Vice-Pres.)
H. H. Maxson, Secy-Treas.

Directors.

G. L. Holton (Turner Oil Co.)
F. R. Kellogg, (Richfield Oil Co)
A. E. Hurley, (Hurley-Smith Co.)
Geo. L. Macharis (Wilshire Oil Co.)
H. W. Heasley (J. M. McLeod Co.)
W. L. Standard (Union Oil Co.)

EXHIBIT 20.

FORMER MEMBERS OF THE OIL MEN'S CREDIT BURRAU.

Name.	Address.	Joined.	Resigned.
Chanslor Motor Oil Co	Los Angeles	March, 1919	Sept., 1919
Chanslor & Lyon	do	March, 1919	Jan., 1920
G. H. Gibson Co	do	March, 1919	Nov., 1919
R. A. Featherstone	do	Aug., 1919	Aug., 1920
Sun Co	do	April, 1920	July, 1920

EXHIBIT 21.

PRICE UNDERSTANDING OF SEPTEMBER 22, 1915.

LOS ANGELES, CALIF., *September 22, 1915.*

GENTLEMEN: At an informal meeting of the Association held today, the well-founded rumor of the advance in the market was discussed, and in view of such advance it was deemed an opportune time to adjust all differentials to precisely the same basis throughout your list of customers. It was also the sense of the meeting that there should be a general stiffening of policy all along the line of garages and service stations more especially as to the following provisions, to-wit:

1st—No advertising fund or rental money or extra inducement to be given to garages or service stations other than the usual signs. Neither shall the refiner furnish pumps or other equipment.

2nd—No gas shall be furnished to re-sellers who cut the stipulated retail price, or who offer free lubricants or free vulcanizing or other premiums, rebate or discount to the consumer of gasoline.

3rd—No *Industrial* or *Commercial* rate. *Wholesale* and *Retail only. Wholesale only* to Bona Fide *garages or service stations. Industrial* and commercials to pay *retail price.*

4th—All market changes to take place simultaneously. Kindly indicate your opinion whether "in favor" or "not in favor" in the blank space below.

Very truly yours,

_____

_____

_____

Above letter sent to all members of the Association.

Exhibit 22.

MEMORANDUM ASSOCIATION MEETING, OCTOBER 4, 1916.

MEMORANDUM.

Oct. 4, 1916

INDEPENDENT PETROLEUM MARKETERS' ASSOCIATION MEETING—OCT. 4, 1916.

The resignation of Mr. Maynard of the Royal Dutch Oil Company was accepted. This Company has been entirely taken over by the Richfield Oil Company, who formerly supplied all of the requirements of the Royal Dutch.

The Wilshire and Richfield Oil Companies are submitting list of their gasoline contracts to Mr. Maxson who will have a complete record on the 16¢ price. All 16¢ price quotations vanished on Oct. 1st, excepting the bona fide contracts of the Wilshire and Richfield Oil Companies. One of the principal disturbers in the South Broadway district is the Broadway Auto Company (Mr. Lockhighter) who has a 16¢ contract with the Richfield Oil Company which expires in August of 1917. He sells gasoline from 17¢ to 17-1/2¢.

A good many of the 18¢ signs have disappeared and the conditions are looking a great deal more favorable.

The question of tank wagon drivers giving over measure to secure business was discussed. It was suggested that a tank wagon inspector be put on by the Association. Said inspector to have the authority to check up any tank wagon driver to see whether or not an overage or shortage was being made.

One of our drivers, a few days ago, called at the Motor Maid Service Station, Washington & Grand and the owner and our driver went to lunch. Presumably our driver paid for the meal. The driver then drove on to another customer who, it has been proven, solicits over measure. This condition is also true of the Motor Maid Service Station.

The plan was to furnish an inspector with proper authority which would allow him to get on any tank wagon at any time and go over the sales tickets and check the wagon. I stated that we absolutely would not listen to such a proposition, that we were perfectly capable of checking up our own drivers and that it would be an admission of poor management on our part if we had to have some outside help. I further stated that if this inspector wanted to stand off to one side and count the number of buckets delivered to a suspicious customer and then ask us as to the amount delivered that we would be perfectly willing to give the information, but that we would in no way tolerate any inspector tampering with our wagons or drivers under any conditions and that it was foolishness for them to think that we would allow this inspector to look over our sales tickets. I further stated that our wagons carried no gauge sticks as the gauging was done by a disinterested party both morning and night at our yards.

All of the other representatives seemed to favor the idea of an inspector gauging and checking the wagons. It was agreed, however, that any of the Oil Companies wishing to make use of the inspector could do so by paying their share

of the expense, figured on the number of their tank wagons operated. Mr. Gallagher who is a member of the Association and a thoroughly honest man, will start in in the morning at $3.00 per day checking up the Final Dome, Western Oil Company and Puente Oil Company's wagons. It was decided that on account of a good many of the members not being directly benefited by this inspector that the expense should not be charged to the association, but to the Companies wishing to make use of said inspector. If we went into this proposition, it would cost us in the neighborhood of $45.00 per month. This was based on a rough estimate of the number of wagons operated by the other Companies and ourselves. I placed the estimate at approximately 80 tank wagons and trucks in the city. However, I found out later from Mr. Woodhams that this should be about fourteen. According to this the expense to us would be in the neighborhood of $20.00 per month.

Mr. Maxson states that they have positive proof that tank wagon drivers are making shortages and giving overages in order to secure business and that a Moral Effect Inspector would be very good.

Mr. Geary has been informed regarding the driver covering the territory at Washington & Grand.

Exhibit 23.

MEMORANDUM SENT TO GASOLINE MARKETERS JANUARY 5, 1917.

MEMORANDUM.

JAN. 5, 1917.

Gasoline marketers from Jan. 15, 1917, will refuse to sell any customer who will not display the retail market price sign.

Will furnish no pedlar [peddler] who will resell at a greater differential than 2¢ or who permits the retailer to display signs under the retail prices.

As contracts expire they will not be renewed except at 2¢ below the current market price at time of delivery.

Any retailer who elects to haul his own or associates' gasoline will be charged the regular 2¢ differential at refiners tanks.

Send copies to
A. F. Gilmore Co.,
Wilshire Oil Co.,
Cal. Oil & Asphalt
Jordon Oil Co.,
Union Oil.
Western Oil.
Turner Oil
Rancho La Brea Oil Co.
Richfield Oil Co.
Final Dome Oil Co.
Dorn-Brouse & Price
Hurley Smith Co.,
G. B. Gallagher.

Exhibit 24.

MEMORANDUM ASSOCIATION MEETING, JANUARY 10, 1917.

MEMORANDUM I. P. M. A. MEETING JAN. 10, '17.

JAN. 10, 1917.

The only question discussed was that relative to the elimination of the 19¢ signs in the City of Los Angeles. It was decided that a special meeting should be held on Thursday evening, January 11th at which every effort would be made to secure the presence of the Wilshire Oil Company as they were the worst offenders and did not seem inclined to come into line. The special meeting was held on Thursday with the Wilshire Oil Co. absent.

At this special meeting, the writer stated that after going over the condition thoroughly and from every angle, we had decided that it was impossible as well as impracticable to eliminate the cut price signs by refusing to make delivery at the present time. The question was thoroughly discussed and it seemed to be, when all representatives got down to figures, that the writer's stand was well taken. We, however, agreed that we would continue to work on the cut price signs and make every effort to eliminate these by persuasion instead of force or refusing deliveries.

It was also agreed that none of the members would take on the Five Mile House on El Monte Road, unless they displayed a 20¢ sign and that should any similar case arise in the future, drastic action would be taken to bring them into line, but as far as making the practice general throughout the City, this question was dropped.

It was also agreed that in case one of the members was endeavoring to straighten up one of his customers or one of the customers of a legitimate peddler, that all members of the Association would stay away from the customer in question for a period of sixty days. This would give the supplying party a chance to straighten them up. The real making of this agreement was to keep the salesmen of the different Companies from camping on the customers trail when it had developed that the supplying party was experiencing trouble in bringing the offending customer into line.

The writer stated that he would make it a point to call on the Wilshire Oil Company on Saturday and see if an agreeable understanding could not be effected. This was done on Saturday afternoon between the hours of two and six thirty. The Wilshire Oil Co. agreed to raise any of their customers who were buying at better than a 2¢ differential to the 2¢ differential at once, also would insist that their peddlers maintain the regular 2¢ differential, also that they would not interfere for sixty days with any of our customers with whom we were having trouble. The Wilshire Oil Co. however, would not agree to change the three 19¢ signs on their own service stations to 20¢ until such time as the competitive conditions in the neighborhood of the three service stations were such that they could put up their 20¢ sign without hurting their business.

The Wilshire Oil Co. were very fair and the writer accomplished a great deal by spending Saturday afternoon with them. The condition looks very much better, at the present time, and in view of the fact that the Western Oil Co. is cut off from their 1,000 gallons per day with the Wilshire on February 1st, and that all of the peddlers are going to experience difficulty in securing supplies and a great many of them will have to discontinue business, the price situation ought to be very much improved within the next thirty days.

cc C. W. Ralph.

Exhibit 25.

MEMORANDUM SENT TO GASOLINE MARKETERS JANUARY 12, 1917.

GASOLINE MARKETERS MEMORANDUM.

Jan. 12, 1917.

Should any marketer advise the Secretary of the likelihood of losing a customer through some misunderstanding, other marketers upon advice will refuse to supply within 60 days from such notification.

Reynolds	Gasoline	Richfield
Five Mile House	Gasoline	Union
Poly High	Gasoline	Doran-Brouse-Price
J. A. Bauman, 27th & Central	"Gasoline"	Richfield
Crawford Bros., 7th & Bonnie Brae		"

Copy Mailed to:

California Oil & Asphalt Co.	Richfield Oil Co.
Doran, Brouse & Price	Turner Oil Co.
A. F. Gilmore Oil Co.	Union Oil Co.
Jordan Oil Co.	Western Oil Co.
Pinal Dome Rfg. Co.	Wilshire Oil Co.
Puente Oil Co.	Mr. Kellogg
Rancho La Brea Oil Co.	Mr. Fuller
	Mr. Graves

Exhibit 26.

MEMORANDUM ASSOCIATION MEETING, JANUARY 17, 1917.

MEMORANDUM I. P. M. A. MEETING, JAN. 17, 1917.

JAN. 18, 1917.

The question of the new bids for the City of Los Angeles was up for discussion. The new request calls for a flat price on all refined oils for a period of six months. All parties who will bid on these new requirements will bid the same as last time namely 1¢ off the open tank wagon market price at time and place of delivery.

The question of the 20¢ signs was taken up. The Richfield Oil Co. are going to use every influence to have Mr. Reynolds, on Pasadena Ave. display a 20¢ sign in which case the Wilshire on Pasadena Ave. will display a 20¢ sign. This will clean up the entire situation as far as Pasadena Ave. is concerned.

As long as the El Monte Road Five Mile House is now displaying a 20¢, the Wilshire, S. O. CO. and Union will start in to clean up the 20¢ signs at Alhambra, South Pasadena and Pasadena. This situation ought to be cleaned up very nicely within the next few days. The Wilshire Oil Co. are selling the service station, just opposite the County Hospital on the El Monte Road. This is a new station, and the Wilshire will make an honest endeavor to have this man put up a 20¢ sign instead of a 19¢, inasmuch as the Five Mile House is displaying a 20¢ sign. There is another service station just in back of the Selig Zoo displaying a 19¢ sign. This station is being served by the Final Dome Refining Co. Mr. Fleisher will straighten up this sign so that it will entirely clean up the El Monte Road and the South Pasadena Road. It is our impression that there are several Union cut price signs displayed in Bairdstown. We are giving Mr. Geary a copy of this memo under personal cover and asking him to co-operate in seeing that this condition is rectified.

The question of the differentials to peddlers was discussed somewhat. The Turner Oil Co. are reducing their peddlers to a 3¢ differential immediately. In fact, they have done some [so] with one of them already. This one in particular is shopping around, but the Wilshire and Richfield agree to take on no new peddler at better than a 3¢ differential.

cc C. W. Ralph
J. M. Geary:—The above for your personal information.

Exhibit 27.

MEMORANDUM ASSOCIATION MEETING, JANUARY 24, 1917.

I. P. M. A. MEETING JAN. 24, 1917.

JAN. 24, 1917.

The question of bids for the City of Los Angeles was discussed as the three bids which were opened this morning were all thrown out by the City Attorney on the grounds that they were illegal. The Companies bidding were the Union Oil Co., Western Oil Co. and S. O. Co. The latter instead of bidding on specifications, bid on Red Crown gasoline.

The application for membership of the Golden State Refining Co. was received and accepted. This will be a great help inasmuch as the Golden State are selling a few jobbers who are a little inclined to cut prices. The Golden State sold one car of Kerosene to the Puente Oil Co. at 9¼¢. This will take some of the Kerosene away from the Orange County Oil Co. who have been cutting prices on Kerosene in the Santa Ana Territory. In a short time we hope to entirely shut off the supply of refined oils to the Orange County Oil Co. or at least control them from their price cutting tactics.

The question of the Annual Banquet of the I. P. M. A. was discussed, but no definite plans made excepting that the Meeting is to be held on Feb. 9th and it is the intention to have from fifty to seventy-five present. The I. P. M. A. have approximately $100 in the Treasury at the present time part of which will be used to defray the Banquet expenses. However, it is barely possible that an assessment of $1.00 per I. P. M. A. member will be levied in order to save part of the funds of the Association.

The question of the cut price signs came up for discussion, but very little was said on account of the attitude shown by the Wilshire Oil Company. At the present time, they absolutely refuse to co-operate in maintaining the 20¢ signs. The cut prices at Venice, Santa Monica and Ocean Park were discussed, but as Mr. Gilmore of the Gilmore Oil Co. was not present, no definite action was taken. Mr. Oakey of the Venture stated a few days ago, that he was perfectly willing to boost his price to 18½¢ at the beaches if the Wilshire and Gilmore would do the same. We will keep after this situation and see if it cannot be cleaned up.

cc C. W. Ralph.

Exhibit 28.

MEMORANDUM ASSOCIATION MEETING, JANUARY 31, 1917.

MEMORANDUM MEETING OF I. P. M. A. JAN. 31, 1917.

Feb. 1, 1917.

Practically all members were present. The Wilshire Oil Co. asked that the Association recommend a change in the gasoline specifications for the City of Los Angeles. The change which they suggest would in reality be a benefit to all concerned, but we gave the Wilshire Oil Co. to understand that as long as they had been lacking somewhat in co-operation in the past, that the Association would go to no trouble in their behalf unless conditions were materially changed. The Wilshire, at the present time, are experiencing difficulty in meeting the gasoline specifications on account of the particularly low boiling point crude which they are running.

While the proposed change would let them in very nicely, it would also be a great benefit to all marketers, inasmuch as more gasoline could be produced which would be just as good, as far as initial and final boiling points are concerned, as is marketed at the present time. The proposition worked out very nicely as a club over the Wilshire Oil Co. and they immediately promised to be good and as evidence of good faith started out on the afternoon of Jan. 31st to straighten up their 19¢ signs in the City of Los Angeles.

The Association will take no immediate action on the proposed gasoline specifications as we want to wait and see whether or not the Wilshire Oil Co. will continue their co-operation.

The present specifications state that the bottoms shall not be heavier than 47.5 Be. With low boiling point crudes such as run by the Wilshire Oil Co., Ventura Refining Co. and the Union Oil Company from the Whittier-Fullerton field, the gravity of the bottoms makes a pretty stiff specification. Mr. Purtzman of the Pinal Dome Refining Co. was present at the meeting and it has been a matter of common talk for sometime that the City specifications on gasoline were a great deal of a joke inasmuch as the loss in distillation has to be a matter of guess. The size of the flask is not determined by the city and although the height of the orifice above the fluid is determined, there would be a great deal of difference in the temperature between a 500 cc flask and a 1,000 cc flask. The City Oil Inspector's department does not run a distillation test on gasoline in strict accordance with the present specifications. In fact, it is impossible to do so.

It is proposed that instead of 70% being distilled over at a temperature not exceeding 280° F. that 50% come over at not exceeding 240° F. that 95% come over at not exceeding 800° and that the bottoms shall not be in excess of 5%, the loss to be added to both percentages distilled. The elimination of the gravity of the bottoms would be of material benefit to all concerned and the initial and final boiling points can be determined so as to not allow any inferior gasolines being sold. To determine these points, a great many samples would have to be taken. There is no immediate hurry about the proposition and I stated that we would be perfectly willing to let the matter rest for the present time, at least until such time as we had an opportunity to go into the matter thoroughly.

Mr. Blackmar is very heartily in favor of the change in the specifications and states that he will put through any specifications recommended by the I. P. M. A.

It was decided that the annual banquet of the I. P. M. A. should be held at the Sierra Madre Club on Feb. 9th. There will be in the neighborhood

of 56 to 60 present and an assessment of $5.00 per member of the Association was levied in order to not entirely deplete the present Treasury Fund of the Association. It was the unanimous opinion of the Association that Mr. C. W. Ralph be asked to officiate as Toast Master.

cc C. W. Ralph
Ref. Oil Conditions, Gasoline sold in the city of Los Angeles
" " " " purchased by the city of Los Angeles.

Exhibit 29.

ANNUAL REPORT OF SECRETARY FOR 1917.

ANNUAL REPORT OF SECRETARY FEB. 9, 1917—FEB 8, 1918.

To the President and Board of Directors,
Independent Petroleum Marketers Assn. of Cal.,
Los Angeles, California.

GENTLEMEN: A review of our membership roll indicates that we now have thirteen full members and four associate members, the same number of each we had one year ago this month. Had we been able to retain those who have resigned we would now have fifteen full members and seven associates, but fortunately we secured two full members and three associates, to wit: The Mifflff Refining Company, Vernon Oil Refining Company, G. H. Gillons Company, Austin, Bryant & Carter and the Panama Lubricants Company to fill the vacancies caused by the resignations of the Pinal-Dome Oil Company, Jordan Oil Company, Diamond Oil Company, Western Oil Company and the Pacific Wood & Coal Company.

The loss of the Pinal-Dome Oil Company due to their absorption by the Union Oil Company was of course unavoidable, and we still have hopes of reenlisting the other four.

The unfortunate condition of the gasoline market due largely to the growth of the coupon system, has made it especially difficult to hold the organization together during the past year. The smaller companies, not wishing to install coupon systems to meet this method of competition, have in many cases encouraged the display of cut price signs with the usual resulting unstable condition of the market. Though this office has redeemed over $18,000 in Association coupons an increase of $5,010.00 over the previous year, only three members have availed themselves of the use of this privilege which would save the considerable expense and annoyance now experienced in the use of individual coupons, which in most cases are good only at their own stations.

In the face of the gasoline shortage that has existed since last June it is a question whether all members have profited as much as they might have done by different marketing methods. Engine distillate and gas oil have been our principal slow moving stocks during the year. This office has secured a market for all surplus engine distillate and in spite of the car shortage has actually moved from stocks of members, forty-three cars of distillate between May and January last, and as equipment becomes available we can continue to move this product to Eastern points. Brokerages from this source amounting to $650.70 have been a great help in maintaining the expense of the office.

The Credit Bureau through constantly adding to the information on hand has accumulated over 3,000 cards giving trade references on that many purchasers of oil and such other information as is always valuable to our members who may thus protect themselves against slow or bad accounts through the experience of others.

The Stove and Furnace Distillate Section has demonstrated the advantage of co-operation during the past year as in the previous year with advances in those commodities from 3½ cents and 4½ cents to 5½ cts. and 6 cents per gallon respectively without any disturbance or loss of trade.

The Lubricating Oil Section recently organized has set out to make concerted adjustments of divergent marketing methods so that in the course of a short while we expect to have all lubricating oil marketers in close accord with their competitors and a resulting healthier condition of this branch of the business.

The Independent Oil Review, the Association paper, though not a source of revenue has held its own for the year at an expense to the Association of but $50.00 per month, though the cost of publication ranges from $100.00 to $150.00 per month to publish.

The principal accomplishment resulting from the past year's efforts of the Association has been the recent adoption of the new City Specification for Gasoline and other refined products sold in and around Los Angeles to secure the lowering of the standards much opposed by City Councilmen who suspected the marketing of a defective product, has been a long drawn out fight, but well worth the effort in consideration of the 20,000 or 25,000 gallons of gasoline alone that may now be added to our output to meet the increasing demand for a product that has long since been sold for gasoline everywhere else in the country.

Our next step will be to extend the new specifications to cover Pasadena and elsewhere in the State formerly supplied with Los Angeles specification gasoline.

The Secretary desires to express his appreciation for the support given his efforts during the year just closed, and hopes to show as good and better results for the coming year.

Respectfully submitted.

HHM:B

Secretary.

Exhibit 30.

MEMORANDUM ASSOCIATION MEETING, JANUARY 21, 1917.

MEMORANDUM COUPON BOOKS—L. A. M. A. MEETING 1/21/17.

March 27, 1917

The question of the Coupon Books in general came up for discussion and I was asked point blank as to our Coupon Book. Stated that our book was to be in the $5.00 and $10.00 denominations and that it was to be of the scrip variety with the coupons redeemable any place where Union Gasoline is sold. However, did not state anything pertaining to the exact details in handling the above in reference to an advance or decline in price.

The question came up before the Association regarding a uniform book for all of its members. I explained to the Association that there were several minor points regarding our Coupon Book which were not explained and it was our intention that these points should be kept under cover until the Book was actually placed on the market and it was my suggestion that the Association let the matter of a uniform book ride until such time as our Book was on the market.

It developed that the Jordan Oil Co. have issued a card for 100 gallons of gasoline at 18¢. This to the commercials only. The station man has a punch and the number of gallons taken each time is punched off on a card. In other words, the Jordan Oil Co. are selling 100 gallons of gasoline to a commercial at 18¢ per gallon to be taken out as a commercial user.

The Richfield Oil Co. are issuing their books indiscriminately at 2¢ off the market to commercial vehicles only, the coupons redeemable at their own service stations.

The Wilshire Oil Co. have two styles of Coupon Books, one a gallonage and the other a scrip. They are not pushing the sale of either at the present time.

The Puente Oil Co. is still using the Association Book which allows only 1¢ off the market to commercial vehicle operators.

In summing up the discussion in general, the Western Oil Co. and Doran Brown & Price stated that as they were not in a position to handle Coupon Books that as all of the other members had gone into the Coupon Books, it would eliminate them entirely. The following scheme was proposed. A $20.00 Scrip Coupon Association Book would be sold to either of the parties in question for $18.00 (2¢ off) and the $18.00 was to be held at the Association Office for the redemption of the book. Either of the two parties in question would then sell this Coupon Book to a customer for $19.00, the coupons being redeemable at any service station operated by a member of the Association. The consumer would pay the Service Station man the list price for gasoline and when the Coupons were pre-

sented to the Association for redemption the $20.00 worth would be redeemed for $18.00. This would allow either of the two Oil Companies in question 1c per gallon, also would make the gasoline net the Union Oil Co. 18c per gallon. These coupons would be good for gasoline at 6th & Mateo service station only as if we took them in from any garage the gasoline would be netting us 16½c per gallon.

This agreement was not decided upon but was suggested as a means of taking care of the two Oil Companies who are members of the Association, but who are not in a position to handle coupon books of their own. If such an agreement cannot be reached, the Western Oil Co. very emphatically state that they are going to make a price of 17c to the garage man. This would be the figure at which Union Gasoline is netting the Union Oil Co. if sold to a garage under our proposed Coupon system. We explained to the Western Oil Co. that they would be doing themselves a great injustice by selling to a garageman at 17c and that if they were determined to make such a price that nobody would try to stop them. We, however, feel that we will be able to hold the Western Oil Co. in line.

As the situation now stands, all members of the Association with exception of the Western Oil Co. and Doran, Brouse & Price, who are marketers of gasoline to the retail trade have Coupon Books.

WLSd:LV

cc C. W. Ralph
J. H. Hull

Exhibit 31.

MEMORANDUM ASSOCIATION MEETING, JUNE 27, 1917.

MEMORANDUM I. P. M., A. MEETING. JUNE 27, '17.

June 28, 1917.

New Specifications covering the refined oils in the City of Los Angeles, was up on June 27th before the City Council and after some little argument, it was turned back to the Public Welfare Committee who were going to meet in the next few days for re-consideration. We have been working with the Committee in question and it looks very much as though they will report favorably to the Council which means that they will pass it within the next week and it will then be effective not later than August 1st.

The sign clause was eliminated from the ordinance by the City Attorney, but the Welfare Committee and the majority of the City Council are in favor of the clause being inserted so it looks very much as though we will gain our point making it necessary for a reseller to display the name or brand of gasoline he is selling.

The question of the G. P. Co. Synthetic gasoline has been taken up separately. This came up in connection with the refined oil conditions in general which was augmented by the Ventura stating that they had held the sack long enough and that they were no longer going to stand for the Western Oil Co. quoting 17¢ to their customers. The Ventura cannot be blamed as the Western Oil, Richfield and Wilshire Oil Co. have certainly been unfair and at the present time are practically quoting 17¢ indiscriminately. The three pirates in question will be gotten together within the next day or two and one more effort made to clear up the situation and put the fear of God in their hearts.

I have talked the situation over pretty thoroughly with Mr. Oakey at the Ventura and it looks as though he would refrain from rocking the boat for the next two or three days, but after that there is no telling what will happen.

WLSd:LV

cc C. W. Ralph
J. H. Hull

EXHIBIT 32.

MEMORANDUM ASSOCIATION MEETING, AUGUST 22, 1917.

I. P. M. A. MINUTES, AUGUST 22ND, 1917.

Both the Western Oil Company and Puritan Oil Company have handed in their resignations to the Association. The former of course was accepted. The latter was tabled as we have hopes of convincing Mr. Jordan that he ought to stay with the Association in view of the market conditions at the present time in Los Angeles.

Mr. Jordan is very friendly but states that in his opinion the Association has failed in its endeavor to accomplish a better marketing conditions in the City of Los Angeles. While Mr. Jordan admits that the Association has been of wonderful benefit up until a month ago, he feels that it is necessary for him to meet competition, and doing such he can not be a member of the Association.

The proposed specifications covering Refined Oils for the City of Los Angeles was up for discussion, but in view of the fact that Mayor Woodman has presented to the City Council an ordinance creating a Department of the Bureau of Standards, which will eliminate the Oil Inspection Department entirely, the Association has taken no further action on the new proposed specifications: in fact, the Association has decided to let the matter rest indefinitely on account of the cut throat tactics of some of the smaller Refiners. If they are going to sell Gasoline at a cut price, we should endeavor to make it as hard for them to manufacture and sell their commodity as possible.

W. L. STANDARD.

WLS:MCH

cc—J.M. Geary

EXHIBIT 33.

ASSOCIATION PRICES EFFECTIVE MAY 5, 1919.

INDEPENDENT PETROLEUM MARKETERS ASSOCIATION OF CALIFORNIA (INC.),

Office of the Secretary, 930-931 Marsh-Strong Bldg., Los Angeles, Cal.

Memorandum notice.

Effective May 5, 1919, and until further notice the following prices will prevail in Los Angeles:

Retail gasoline.

20½ cents all garages and service stations sold by members of this Association. Price signs must be displayed.

Engine distillate.

13½ cents at all garages and service stations whether owned or served by our refiners or marketers.

Commercial stations.

Location.	*Owner.*
6th & Mateo	Union Oil Co.
6th & Central	Wilshire Oil Co.
9th & Los Angeles	" " "
12th & Hill	" " "
9th & Olive	Richfield Oil Co.
11th & San Pedro	Cal. Oil & Asp. Co.
11th & Los Angeles	Western Oil Co.

Gasoline.

19½ cents net to one and all consumers. No price signs will be displayed.

Engine distillate.

13 cents net to one and all.

Wholesale gasoline.

18½ cents delivered to all re-sellers, garages and service stations where the 20½ cent retail price prevails.
17½ cents at our plants to all bona fide peddler of this commodity.
17½ cents f. o. b. Los Angeles tank car lots.

Engine distillate.

12½ cents delivered to all re-sellers, garages and service stations where the 13½ cents retail price prevails.
12 cents at our plants to all bona fide peddlers.

Kerosene.

11½ cents delivered to all re-sellers.
10 cents at our plants to peddlers.

EXHIBIT 34.

LISTS OF RECOGNIZED PEDDLERS.

MEMORANDUM NOTICE MAY 8, 1919.

Confidential

Beginning immediately all customers, unless in possession of a reseller's license, buying at commercial stations including Union Oil and Standard Oil Stations, will be charged the minimum prices of 19½ cents net per gallon for gasoline and 13 cents net per gallon for Engine Distillate.

Exceptions—Large Commercials such as Public Service Corporations, Light, Gas, Telephone, Electric and Steam Railway Companies, City, County, and State Institutions; Corporations doing a State-wide business such as Globe Mills, Sperry Mills, Hauser Packing Co., Cudahy, and Wilson Bros., 18½ cents net for gasoline. All other Commercial customers 19½ cents unless in possession of a City license for reselling which will entitle them to the reseller's price of 18½ cents.

Bona fide gasoline peddlers.

Gasoline	17½ cents net at plants
Engine Distillate	12 " " " "
Kerosene	10 " " " "
American Auto Supply Co.	Long Beach, Cal.
Artesia Oil Co.	(Lufborough)
Bowman, Chas.	
Butler, C. J.	
Deetle	
Doran, E. A.	
Gamble	
Gross,	
Heckler	
Home Oil Co.	Orange, Santa Ana, Cal.
Howie	
Lodge	Elmonte, Cal.
Long Beach Oil Co.	
Mirch	Santa Ana, Cal.
Orange County Oil Co.	
Penn. Oil Co.	Pasadena, Cal.
Pfiester	Anaheim, Cal.
Sladen	Pasadena, Cal.
Starrett	Long Beach, Cal.
Thomas	Redondo, Cal.

Any peddlers of previous good standing and omitted from the list for lack of present knowledge to this effect will be added to this list, *but no new peddlers will be recognized.*

ADDENDA TO MEMORANDUM NOTICE MAY 5, 1919.

Confidential.

State Institutions now buying gasoline at 19-1/2 cents will continue at the one cent differential from retail market price of 20-1/2 cents.

Los Angeles City Employees Association, previously buying at two cents off the gasoline market, are raised to a one cent differential.

Employees of Commercial or Industrial Consumers are entitled to the 19-1/2 cent (or one cent off market) but must present identification card from Employer.

BONA FIDE GASOLINE PEDDLERS.

(Add to List)

J. E. Humphries.....Pasadena, Cal.
Longmeyer (Bought out Keene).....Garden Grove, T. O.

EXHIBIT 35.

STANDARD'S MEMORANDUM OF ASSOCIATION MEETING OF MAY 8, 1919.

LOS ANGELES, CAL., *May 8, 1919.*

LOS ANGELES MARKET

Personal

Mr. H. D. COLLIER:

At a Meeting of the Independent Petroleum Marketers Association held yesterday, it was unanimously agreed that the following selling policy would be effective at once on the sale of Gasoline and Distillate:

To all bona fide re-sellers with city licenses Gasoline 18-1/2¢ per gallon and Engine Distillate 12-1/2¢ per gallon.

To Public Utilities Corporations, Federal, State and Municipalities, Gasoline 18-1/2¢, Engine Distillate 12-1/2¢ per gallon.

All Coupon Books at 5% discount.

To Industrials, Gasoline 19-1/2¢ per gallon and Engine Distillate 13¢ per gallon.

All purchases at refinery owned Service Stations to be on the basis of list price with the exception of the following owned stations where commercial rates are extended to all industrial and commercial car operators:—

Union Oil Co. Stations—8th & Mateo.
Wilshire Oil Co. Stations—8th & Central, 12th & Hill, and 9th & Los Angeles.
Richfield Oil Co. Station—9th & Olive.
Cal. Oil & Asphalt Co. Station—11th & San Pedro.
Western Oil Co. Station—11th & Los Angeles.

The above seven stations are considered commercial car stations, and it is reasonable to assume that all cars or trucks going to these stations will receive the 19-1/2¢ price on Gasoline and 13¢ price on Distillate.

The price to Peddlers in their own tank wagons at refinery tanks is 17-1/2
per gallon for Gasoline, and the list for Peddlers was closed yesterday at noo
so that no new Peddlers would be created. Distillate at 12¢ per gallon.

Tank car prices on Gasoline are 3¢ off the prevailing list price at date of
delivery, and 1¼¢ off on Distillate, although there is no surplus of Distillate or
Gasoline available for carload shipments at this time. The slight surplus that
will be accumulated from time to time will be moved into Idaho or New Mexico.

Some of the Refiners will retain their country Peddlers on Gasoline and Dis-
tillate on the above basis making shipments of same in tank cars. This would
include—

Home Oil Co. at Riverside, Pomona and Ontario, supplied by the Wil-
shire Oil Co.

Lodge at Pomona, supplied by the Puente Oil Co.

H. R. Slayden & Co. at Pasadena, and the San Bernardino Valley Oil
Co. at San Bernardino, supplied by the Richfield Oil Co.

Of course there are numerous small Peddlers who have been driving into
Los Angeles with small tank wagons and a trailer tank wagon, who will con-
tinue to do so and secure the Peddlers differential at Refinery tanks, as above
noted.

This is just for your information.

J. L. QUINN.

JLQ/D

EXHIBIT 86.

LOS ANGELES CITY BIDS.

CITY OF LOS ANGELES.

Department of Supplies.

202 North City Hall Annex
Main 9060 60211

AUGUST 1, 1921.

FEDERAL TRADE COMMISSION,
Washington, D. C.

GENTLEMEN: In reply to your letter of July 18th, File W. H. E. addressed
Mayor George E. Cryer, requesting additional information of certain bids fo
refined oils for the year 1917:

On specifications No. 155, three quotations were received on December 2
1916. The Union Oil Company quoted on gasoline, in tank wagon delivery
drums, 19¢ per gallon, which was 1¢ less than the retail market price. Th
Standard Oil Company and Western Oil Company quoted 1¢ less than reta
market price, not specifying any amount. The City Attorney ruled that bi
of this kind was not legal and all bids were rejected by the City Council
its meetings of January 17, 1917.

Specification No. 155-A was then adopted calling for bids on January 2
1917, for a period February 1st to June 30th, 1917. The same items quoted in th
same manner and bids were again rejected and the Purchasing Agent instructe
to issue regular purchase orders for supply at the best price obtainable.

Gasoline was purchased at 19¢ per gallon during the months of January, Fe
ruary, March, April, and May, and at 18¢ per gallon during the remainder
the year.

Trusting that this will give you the desired information, I am

Very truly,

(Sgd.) THOMAS QUIGLEY
Purchasing Agent.

cc-Mayor

EXHIBIT 87.

MEMORANDUM ON GAS OIL.

MEMORANDUM GAS OIL SITUATION CONFIDENTIAL.

JAN. 23, 1919.

Discussed Gas Oil Situation with a number of interested parties yesterday, those present were the G. P. Co. Fuente Oil Co., Wilshire Oil Co., Richfield Oil Co., Ventura Refining Co., and California Oil and Asphalt Company. Those absent were the Vernon Oil Refining Co. and the Golden State Refining Company. It was agreed that no price should be quoted either *Tarr & McComb* or *Mr. Roseberg* other than 6¼¢ tank cars f. o. b. Refinery on Gas Oil. This on account of the irresponsibility of the two parties in question as to the maintenance of prices. These two people have been canvassing the refiners to secure a contract on Gas Oil. The Vernon Oil Co. are members of our organization and we believe that they will agree to the above. This will be taken up with them through the Association. This will also be done in the case of the Golden State Refining Company and it may be that they will not fall into line. However, their production is so limited that they could be ignored if necessary.

It was further agreed that all interested would quote legitimate *jobbers at 5¼¢ or 6¼¢ direct to the consumer.* The question was discussed as to exactly what was meant by a jobber or reseller and each of the Oil Companies present agreed to make a list of their customers who were entitled to the 5¼¢ price. Such a list was prepared and we will receive copy within the next few days. It was impossible to reach an agreement that the one price of 6¼¢ should prevail to all purchasers. All Co-Operative Farm Associations are classed as resellers providing they do sell direct to their own members.

In reference to the question of the Crude Oil clause the G. P. Co. give their customers either a flat price or ¼¢ per gallon advance or decline for each 5¢ per barrel advance or decline in California Crude. They have some contracts taken both ways. The Richfield Oil Co. in their contracts specify that the quotation is subject to any advance in California Crude and that the advance in the gas oil is the same amount as the advance in the crude. If crude advances 5¢ per barrel, the gas oil contract price would advance 5¢ per barrel (42 gallons each).

The G. P. Co. and Richfield Oil Co. yesterday afternoon quoted the Tucson Warehouse & Transfer Co. Gas Oil at 5¼¢. They held up this quotation until after the result of the meeting. A few days ago the California Oil & Asphalt sold four cars of gas oil to Tarr & McComb at a price below 6¼¢. This, of course, was prior to the meeting and will not be repeated.

The Ventura Refining Company stated that their gas oil runs from 41–42 gravity and that the flash test was in the neighborhood of 100° Fahr. It was learned that the S. O. Co. product showed a gravity of approximately 40 with a flash test of approximately 106° Fahr. The Richfield Oil Co. gas oil shows a gravity of 38–39, flash test 120. The Richfield made the statement that this year they had secured the requirements Agricultural Products Association in Arizona at 6¼¢ and that the contract specified that if better than 40 gravity was delivered that the price would be 6-6/10¢ (dont remember which.)

In view of the above, we wired Mr. Beach yesterday afternoon to quote the Tucson Warehouse & Transfer Company either a flat price of 5¼¢ or with the ¼¢ differential advance or decline in California Crude giving the customer the option. Writer predicted that in a very short time, the majority of our gas oil would be sold at 5¼¢, but the other refiners would not listen to the 6¼¢ price. All interested agreed to lay the cards on the table when the question came up as to camouflage quotations and that before they made any quotation of 5¼¢ they would be absolutely sure the customer was a legitimate jobber.

WLSd LV

cc C. W. Ralph
J. M. Geary
J. H. Hull

EXHIBIT 38.

PRICE LISTS OF STOVE AND FURNACE DISTILLATE.

Los Angeles, Calif., *January 15, 1917.*

LIST ON STOVE AND FURNACE DISTILLATE.

Stove distillate delivered from tank wagons or trucks in bulk, Business or Industrial Consumers	4-1/2¢ per gal.
Consumers having tank capacity of 500 gals. or more, hose connection fills only	4¢ " "
Consumers having tank capacity of 250 gals. or more, bucket or hose connection fills	4-1/4¢ " "
Family or Household Consumers, any quantity	5-1/2¢ " "
(No delivery under 25 gallons.)	
(No contracts at these prices.)	
Furnace distillate delivered from tank wagons or trucks in bulk, Business or Industrial Consumers	3-3/4¢ per gal.
Consumers having tank capacity of 1000 gals. or more, delivered at one place, hose connection fills only	3-1/2¢ per gal.
Consumers having tank capacity of 100 gals. or less	4¢ " "
Family or Household Consumers	4-1/2¢ " "
Consumers having tank capacity of 500 gals., hose connection fills	3-3/4¢ " "
(No contracts at these prices.)	

Prices net: No discount.

No soliciting of competitors' customers during the month of January. Agreed that all pump troubles should be referred to expert in that line. (Anderson good man.) 'Phone 557928.

I. P. M. A. (Inserted)

Los Angeles

[Effective February 20, 1920.]

RETAIL.

LIST ON STOVE AND FURNACE DISTILLATE.

Stove distillate delivered from tank wagons or trucks in bulk, business or industrial consumers (less than 250 gals.)	8-1/2¢ gal.
Consumers having tank capacity of 500 gals. or more, hose connection fills only	8¢ "
Consumers having tank capacity of 250 gals. or more, bucket or hose connection fills	8-1/4¢ "
Family or Household Consumers—any quantity	9-1/2¢ "
(No delivery under 25 gal.)	
(No contracts at these prices.)	
Furnace distillates—delivered from the tank wagons or trucks in bulk, business or industrial consumers	7-1/2¢ "
(500 gals. or over but less than 1000 gals.)	
Consumers having tank capacity of 1000 gals. or more, delivered at one place, hose connection fills only	7-1/4¢ "
Consumers having tank capacity of 100 gals. or less	7-3/4¢ "
(also less than 500 gals.)	
(No deliveries under 25 gals.)	
Family and Household Consumers	9-1/2¢ "
Consumers having tank capacity of 500 gals. (plus) hose connection fills	7-1/2¢ "
(No contracts at these prices.)	

Prices net—no discount.

Excepting for City, County and Government supplies, no new contracts will be made, nor old contracts renewed.

Deliveries in territory north of Santa Monica Blvd. or west to Arlington and Bronson Aves, take 1/2¢ advance over the above prices.

No pump or burner parts or supplies to be furnished without charge, or less than the list price of same.

WHOLESALE FOR LOCAL CONSUMPTION.

Stove distillate—		
Tank car lots f. o. b. Los Angeles	6-1/2¢	gal.
Tank wagon lots f. o. b. Los Angeles	7¢	"
Furnace distillate—		
Tank car lots f. o. b. Los Angeles	5-3/4¢	"
Tank wagon lots f. o. b. Los Angeles	6-1/4¢	"

SANTA MARGARITA

APPENDIX TABLES.

TABLE 1.—*Domestic sales of fuel oil in the Pacific coast marketing territory, by the principal marketing companies, by States, 1914–June 30, 1919, and total domestic and export sales, 1914–1919.*

State and year.	Standard.		Union.		Associated.		Shell.		General.		Total
	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.	Per cent.	Barrels.
Arizona:											
1914	978,093	82.4	669,309	22.8	260,492	15.1					1,908,892
1915	1,354,198	55.4	713,525	29.0	394,134	15.6					2,461,854
1916	1,711,998	68.8	1,226,321	35.0	547,433	15.6			[1]12,855	0.6	3,510,512
1917	1,703,288	68.5	1,154,669	38.4	104,932	3.5			247,573	1.6	3,108,835
1918	2,697,733	74.8	416,300	10.7	17,718	.5	35,773	0.9	221,379	13.3	3,913,921
1919 [2]	668,397	70.2	226,924	24.3			503	.1	82,646	5.4	972,563
California:											
1914	6,227,895	28.2	6,450,763	27.9	10,127,470	43.9					26,116,112
1915	5,207,457	28.5	6,606,909	36.8	10,005,013	44.7					22,300,379
1916	6,555,800	23.7	6,662,670	24.2	10,342,834	38.3			[1]3,883,230	12.8	27,614,534
1917	5,108,394	28.4	7,020,784	31.9	12,585,149	34.6			7,451,909	31.1	36,856,376
1918	5,748,215	23.1	6,499,026	26.0	6,749,230	22.1	4,106,677	16.2	4,738,526	12.6	27,841,676
1919 [2]	2,718,777	18.2	4,800,345	30.0	5,672,145	34.5	2,335,536	15.6	1,737,343	11.7	14,994,172
Idaho:											
1914	28,341	100.0									28,341
1915	30,877	100.0									30,877
1916	41,228	100.0									41,228
1917	39,738	100.0									39,738
1918	44,649	100.0									44,649
1919 [2]	10,369	100.0									10,369
Nevada:											
1914	468,973	96.4			17,270	3.6					486,243
1915	457,773	96.9			14,994	3.2					472,767
1916	468,110	95.3			22,407	4.7					490,517
1917	388,044	95.3			19,003	4.7					407,047
1918	226,811	82.9			17,685	4.9	113,984	32.2			358,484
1919 [2]	21,189	33.3					42,453	66.7			63,642
Oregon:											
1914	630,782	11.0	1,598,426	27.9	3,579,727	62.5					5,808,935
1915	457,333	11.5	968,535	24.3	2,511,205	63.2					3,937,073
1916	467,763	6.5	960,348	20.5	3,265,453	70.7					4,693,564
1917	1,066,736	22.0	960,654	21.1	2,525,233	54.9					4,552,623
1918	1,195,683	22.0	1,129,962	22.5	2,195,015	42.5	119,008	2.4	[1]539,268	10.6	5,178,936
1919 [2]	301,729	14.3	747,830	30.1	909,474	36.6	271,170	14.9	102,425	4.1	2,484,327
Washington:											
1914	2,468,630	58.2	1,428,641	22.6	1,319,179	21.2					5,221,289
1915	2,663,057	58.1	1,320,754	21.0	1,234,685	19.9					5,218,296
1916	4,276,447	63.8	1,788,870	22.5	1,602,586	23.7			[1]270,540	4.0	7,937,443

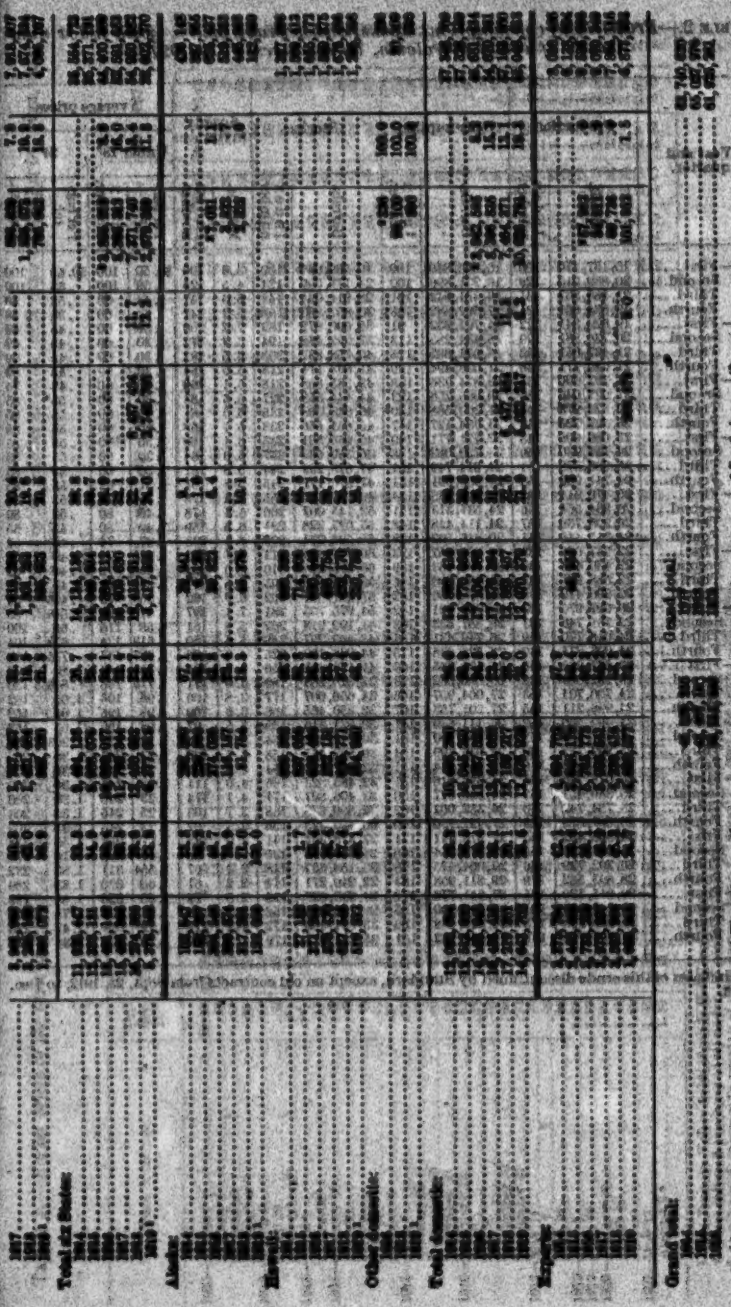

TABLE 2.—*Production, consumption, stocks, and average prices (with index numbers) of crude petroleum, by quarters, 1910–1921.*

Year and quarter.	Production.		Consumption.		Stocks.		Supply in storage.	Average prices.			
								Under 18°.		24°.	
	Barrels.	Index number.	Barrels.	Index number.	Barrels.	Index number.	Months.	Per bbl.	Index number.	Per bbl.	Index number.
1910—First	16,127,170	107	15,989,346	100	19,809,085	100	3.6	$0.50	100	$0.61	100
Second	20,988,910	139	15,232,366	100	24,177,069	121	4.5	.50	100	.61	100
Third	21,165,867	141	15,441,642	101	29,911,294	148	5.7	.43	86	.53	87
Fourth	19,924,451	131	17,065,983	106	32,682,888	158	5.3	.39	78	.52	85
1911—First	19,659,241	130	14,791,233	93	35,980,972	169	7.3	.39	78	.43	70
Second	20,736,861	139	16,434,365	113	37,983,466	194	6.3	.39	78	.45	74
Third	21,457,664	143	15,971,663	115	40,726,827	206	6.5	.39	78	.45	74
Fourth	21,665,771	136	21,096,494	129	41,982,114	213	5.9	.39	78	.43	70
1912—First	20,777,060	135	20,274,956	136	42,982,963	218	6.1	.39	78	.43	70
Second	21,985,040	146	20,080,256	138	44,447,643	227	6.6	.39	78	.43	70
Third	22,332,979	141	21,230,160	130	45,550,096	233	6.4	1.50	300	.53	87
Fourth	22,227,722	142	23,324,127	147	44,451,691	232	5.7	1.50	300	.53	87
1913—First	22,080,938	142	22,771,771	146	43,860,861	235	6.1	1.50	300	.53	87
Second	23,151,230	150	23,722,083	146	43,289,889	237	5.9	1.50	300	.53	87
Third	22,882,279	161	24,276,749	151	41,875,729	244	5.3	1.51	302	.53	87
Fourth	24,741,985	153	24,940,981	151	41,676,773	245	5.3	1.51	302	.53	87
1914—First	24,670,814	144	24,886,855	144	41,460,732	244	5.4	1.76	352	.53	87
Second	25,884,554	160	24,207,213	151	42,145,007	246	5.1	1.79	358	.53	87
Third	24,995,788	157	24,114,448	148	43,027,338	251	5.1	1.80	360	.53	87
Fourth	24,313,440	151	23,516,938	139	43,824,274	249	5.2	.75	150	.53	87
1915—First	23,267,090	144	23,966,947	152	43,277,888	251	5.1	.75	150	.53	87
Second	23,420,489	146	23,811,455	150	42,886,922	250	5.0	.75	150	.53	87
Third	23,884,985	151	23,985,886	150	42,785,981	251	5.0	.75	150	.53	87
Fourth	23,208,453	150	24,670,886	155	41,327,548	241	4.9	.75	150	.53	87
1916—First	23,827,975	148	23,999,211	150	54,971,764	321	7.1	.75	150	.53	87
Second	22,731,746	141	24,227,225	152	53,476,213	313	6.8	.75	150	.53	87
Third	24,615,770	149	24,749,431	154	48,449,552	283	5.4	.75	150	.53	87
Fourth	24,888,221	149	24,754,888	155	44,588,219	261	4.6	.75	150	.53	87
1917—First	23,827,880	148	24,284,888	152	43,131,211	252	4.7	.75	150	.53	87
Second	23,981,881	149	23,984,887	150	37,127,205	217	4.0	.75	150	.53	87
Third	24,709,774	153	27,064,887	169	34,772,887	203	3.8	.75	150	.53	87
Fourth	24,994,211	155	27,201,723	170	32,565,887	190	3.6	.75	150	1.06	174
1918—First	24,882,888	154	26,111,888	163	30,337,887	177	3.4	.75	150	1.06	174
Second	24,887,888	154	23,884,888	149	31,340,887	183	3.6	.75	150	1.06	174
Third	24,709,774	153	23,884,888	149	32,165,887	188	3.7	.75	150	1.06	174
Fourth	24,994,211	155	23,884,888	149	33,275,887	194	3.8	.75	150	1.06	174
1919—First	24,882,888	154	23,884,888	149	34,273,887	200	3.9	.75	150	1.06	174
Second	24,887,888	154	23,884,888	149	35,276,887	206	4.0	.75	150	1.06	174
Third	24,709,774	153	23,884,888	149	36,101,887	211	4.1	.75	150	1.06	174
Fourth	24,994,211	155	23,884,888	149	37,211,887	217	4.2	.75	150	1.06	174
1920—First	24,882,888	154	23,884,888	149	38,209,887	223	4.3	.75	150	1.06	174
Second	24,887,888	154	23,884,888	149	39,212,887	229	4.4	.75	150	1.06	174
Third	24,709,774	153	23,884,888	149	40,037,887	234	4.5	.75	150	1.06	174
Fourth	24,994,211	155	23,884,888	149	41,147,887	240	4.6	.75	150	1.06	174
1921—First	24,882,888	154	23,884,888	149	42,145,887	246	4.7	.75	150	1.06	174
Second	24,887,888	154	23,884,888	149	43,148,887	252	4.8	.75	150	1.06	174
Third	24,709,774	153	23,884,888	149	43,973,887	257	4.9	.75	150	1.06	174
Fourth	24,994,211	155	23,884,888	149	45,083,887	263	5.0	.75	150	1.06	174

[1] Purchases of this crude discontinued by Standard, except on old contracts from Sept. 22, 1913, to Dec. 1, 1913.

TABLE 3.—*Market prices of the various grades of California crude petroleum, per barrel of 42 gallons at wells, with dates of changes in prices, San Joaquin Valley fields,[1] 1910–1921.*

[Gravity of crude in Baumé degrees.]

Date of change.	Under 18°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°	35°	36°	37°	38° and over.
1910—January 1	$0.35	$0.40	$0.45	$0.50	$0.55	$0.60	$0.65	$0.70	$0.75	$0.80	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85	$0.85
February 1	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
March 1	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
September 1	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
November 1	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
1912—April 1	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
December 1	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
1914—January 20	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
May 20	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
July 1	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
July 20	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
October 8	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
1915—June 7	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
October 25	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
November 25	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
December 28	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
1916—February 16	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
April 1	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
July 1	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
September 26	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
November 21	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
1917—May 11	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
June 1	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
June 26	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
1918—May 24	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
July 15	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
1920—March 11	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
March 17	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
July 29	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
1921—May 12	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85
August 15	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85

[1] San Joaquin Valley fields include the Kern River, Midway-Sunset, McKittrick, Lost Hills-Belridge, and Coalinga fields.
[2] Discontinued purchase of oil under 18° gravity, September 20, 1913, to December 1, 1913.
[3] And for each increase in gravity of 1 full degree above 37° gravity, 3 cents per barrel additional.
[4] And for each increase in gravity of 1 full degree above 37° gravity, 2 cents per barrel additional.
[5] And for each increase in gravity of 1 full degree above 37° gravity, 3 cents per barrel additional.
[6] No change in price in 1918 after this date.

TABLE 4.—*Market prices of the various grades of California crude petroleum, per barrel of 42 gallons at wells, with dates of changes in prices, Whittier-Fullerton fields, 1910–1921.*

[Gravity of crude in Baumé degrees.]

Date of change.	16–16.9°	17°	18°	19°	20°	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°	32°	33°	34°	35°	36°	37°	38° and over.
1910—December 28					$0.75	$0.75	$0.75	$0.75	$0.75	$0.75	$0.75	$0.75	$0.75	$0.75	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00
1911—July 1			$0.65	$0.65																			
1913—January 1																							
1914—January 1																							
July 25																							
July 27																							
July 30																							
August 1																							
1915—November 29																							
December 28	$0.65	$0.65																					
1916—January 10																							
April 1																							
July 7																							
September 20																							
September 21																							
1917—May 11																							
June 7																							
June 8																							
1918—May 1																							
1919—January 14																							
1920—January 17																							
May 18																							
1921—May 18																							
August 1 [1]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]

[1] And for each increase in gravity of 1 full degree above 37° gravity, 1 cent per barrel additional.
[2] And for each increase in gravity of 1 full degree above 37° gravity, 3 cents per barrel additional.
[3] And for each increase in gravity of 1 full degree above 37° gravity, 1 cent per barrel additional.
[4] No change in price in field after this date.

TABLE 5.—*Market prices of fuel oil quoted by the principal marketing companies, at Los Angeles and San Francisco, Calif., Portland, Oreg., Seattle and Spokane, Wash., with dates of change in price, 1914–1920.*[1]

[Prices per barrel of 42 gallons.]

Date of change in price.	Los Angeles.				San Francisco.				Portland.			Seattle.			Spokane.
	Standard Oil Co.	Union Oil Co.	Associated Oil Co.	General Petroleum Corporation.	Standard Oil Co.	Union Oil Co.	Associated Oil Co.	Shell Co. of California.	Standard Oil Co.	Union Oil Co.	Associated Oil Co.	Standard Oil Co.	Union Oil Co.	General Petroleum Corporation.	Standard Oil Co.
1914															
Jan. 1	$0.75				$0.90				$0.95			$0.95			$0.95
Jan. 13			$0.60				$0.80				$0.95				
Jan. 21		$0.65	.75		.85	$0.85			1.00	$1.00		1.00	$1.00		1.00
Feb. 4			.70				.80				1.00				
Feb. 14								$0.85							
Mar. 1			.65												
July 29							.75	.75			.90				
Aug. 6	.60				.75				.90			.90			.90
Aug. 10		.75				.75				.90			.90		
Oct. 10							.70	.70							
Oct. 12											.80				
Oct. 20					.70							.85			.85
Oct. 22						.70				.80	.85		.80		
Oct. 27									.85						
Nov. 24											.80				
1915															
Jan. 9	.60								.80			.80			.80
Jan. 13			.60												
Jan. 21			.75												
Feb. 10			.70					.65							
Feb. 13		.65								.80			.80		
Mar. 1			.60												
May 3			.55				.60	.65							
Aug. 6					.60				.75			.75			
Aug. 10									.80						
Aug. 17	.65		.60		.65							.80			
Sept. 20							.65	.65							
Oct. 15									.85	.85	.85	.85	.85		.85
Oct. 20		.65				.65									
Oct. 26			.65				.70	.70		.80	.80		.80		
Oct. 27	.70	.70			.70	.70			.80			.80			.80
Nov. 27	.75	.75			.75	.75			.85	.85	.85	.85	.85		.85
Nov. 29			.70				.75	.75							
Dec. 20	.80		.80		.80				1.00		.95	1.00			1.00
Dec. 29							.80	.80		1.00			1.00		
Dec. 31		.80				.80				1.00			1.00		
1916															
Feb. 1	.85														
Feb. 2			.80				.80	.85			1.00				
Feb. 5		.80			.80					1.00			1.00		
Feb. 10	.90	.90	.90		.90		.90	.90		1.10	1.10	1.10	1.10		1.10
Feb. 20									1.10						
June 1					.90										
July 6								.95							
July 7	.95	.95	.95	$0.95		.95			1.15	1.15		1.15	1.15	$1.15	1.15
July 10							.95				1.10				
July 19								1.00							
July 20	1.00	1.00		1.00	1.00	1.00			1.20	1.20		1.20	1.20	1.20	1.20
Aug. 1			1.00				1.00				1.20				
Sept. 30	1.00	1.00				1.00		1.00		1.30			1.30		
Sept. 31					1.00				1.35			1.35		1.35	1.35
Sept. 30			1.00				1.00				1.30				
Oct. —				1.10											
Nov. 1	1.10														
Nov. 11			1.10				1.10								
Nov. 15		1.15				1.15									
Nov. 20								1.15							
Nov. 21					1.15				1.35			1.35			1.35
Nov. 30											1.30				
Nov. —				1.15											
Dec. 2	1.15				1.15			1.15	1.35			1.35			1.35
Dec. 6			1.15				1.15				1.35				
Dec. 16														1.30	

[1] Prices are for San Francisco Bay refinery points.

TABLE 5.—*Market prices of fuel oil, etc.*—Continued.

[Prices per barrel of 42 gallons.]

Date of change in price.	Los Angeles.				San Francisco.[1]				Portland			Seattle.			Spokane
	Standard Oil Co.	Union Oil Co.	Associated Oil Co.	General Petroleum Corporation.	Standard Oil Co.	Union Oil Co.	Associated Oil Co.	Shell Co. of California.	Standard Oil Co.	Union Oil Co.	Associated Oil Co.	Standard Oil Co.	Union Oil Co.	General Petroleum Corporation.	Standard Oil Co.
1916.															
Dec. 20														$1.35	
Dec. 22		$1.15				$1.15				$1.30			$1.30		
Dec. —				$1.20											
Dec. —				1.35											
1917.															
Jan. 19	$1.20				$1.20			$1.20							
Jan. 22		1.30				1.30				1.35			1.35		
Jan. 29			$1.30				$1.30								
Jan. —				1.40											
Apr. 2														1.50	
May 11					1.30		1.30	1.30	$1.45		$1.45	$1.45			$1.30
May 25						1.50				1.45			1.45		
May 30														1.45	
June 7	1.35		1.31		1.35		1.35	1.35	1.30		1.30	1.30			1.32
June 11		1.315				1.35				1.30			1.30		
June 14														1.30	
June 16		1.415				1.45				1.30			1.30		
July 2	1.35		1.42		1.45		1.45	1.45	1.60		1.60	1.60		1.60	1.62
July 3	1.42														
July 5		1.42													
July 30		1.45													
July —				1.45											
Aug. 9	1.45		1.45											1.75	
Aug. 9															
Nov. 10			1.62												
Dec. 19	1.60														
Dec. —				1.70											
1918.															
Jan. 28			1.45						1.62	1.62		1.62	1.62		1.62
Mar. 28									1.75		1.70	1.75			1.75
Apr. 2					1.47	1.47		1.47							
Apr. 9					1.60										
Apr. 15						1.60									
Apr. 16								1.60							
May 1	[2]1.67				1.60			1.60	1.67			1.67		1.60	1.60
May 2			1.60				1.60				1.60				
May 9		1.60				1.60				1.67			1.67	1.65	
May —				1.60											
June 26	1.60														1.60
Aug. 1									1.65	1.65		1.65	1.65		1.60
Aug. 7	1.60														1.62
Sept. 16	(3)														1.60
Dec. 1									1.67	1.67		1.67	1.67		1.62
1919.															
Jan. 1									1.60	1.60		1.65	1.65		1.60
1920.															
Mar. 17		1.60		1.65	1.65	1.60		1.60	2.10	2.10		2.10	2.10	2.10	2.10
Mar. 20			1.60				1.60				2.10				
May 13										2.35					
May 14				2.00										2.35	
May 20								2.35							
July 13		2.00			2.00	2.00		2.35	2.35	2.40		2.35	2.40		2.35
July 14			2.00				2.00				2.35				
July 15				2.12										2.47	
Aug. 1				2.35										2.60	

[1] Prices are for San Francisco refinery points.

[2] Price advance May 1, 1917, made at the request of Federal Fuel Administration.

[3] Commencing Aug. 20 no prices made by Standard Oil Co. at Los Angeles.

TABLE 9.—*Monthly average prices of heavy crude petroleum at wells and fuel oil at San Francisco Bay refineries, and the excess of fuel oil prices over crude prices, 1914–1920.*

[Per barrel of 42 gallons.]

Year and month.	Heavy crude at wells, San Joaquin Valley.	Fuel oil, San Francisco Bay refinery.	Excess of fuel oil prices.	
			San Francisco Bay refineries over heavy crude.	Seattle over San Francisco Bay refineries.
1914.				
January	$0.370	$0.550	$0.180	$0.110
February	.360	.550	.190	.110
March	.360	.550	.190	.110
April	.360	.550	.190	.110
May	.360	.550	.190	.110
June	.360	.550	.190	.110
July	.360	.550	.190	.110
August	.360	.550	.190	.110
September	.360	.550	.190	.110
October	.377	.570	.193	.110
November	.375	.700	.325	.110
December	.375	.700	.325	.110
1915.				
January	.375	.700	.325	.110
February	.375	.700	.325	.110
March	.375	.700	.325	.110
April	.375	.700	.325	.110
May	.375	.700	.325	.110
June	.375	.700	.325	.110
July	.375	.700	.325	.110
August	.375	.700	.325	.110
September	.375	.700	.325	.110
October	.375	.670	.295	.110
November	.384	.670	.286	.110
December	.434	.700	.266	.110
1916.				
January	.450	.820	.370	.110
February	.471	.820	.349	.110
March	.520	.820	.300	.110
April	.520	.820	.300	.110
May	.520	.820	.300	.110
June	.520	.820	.300	.110
July	.520	.870	.350	.110
August	.620	1.000	.380	.110
September	.645	1.020	.375	.110
October	.660	1.020	.360	.110
November	.667	1.070	.403	.110
December	.720	1.130	.410	.110
1917.				
January	.720	1.170	.450	.110
February	.720	1.260	.540	.110
March	.720	1.260	.540	.110
April	.720	1.260	.540	.110
May	.764	1.270	.506	.110
June	.820	1.340	.520	.110
July	.860	1.400	.540	.110
August	.860	1.400	.540	.110
September	.860	1.400	.540	.110
October	.860	1.400	.540	.110
November	.860	1.400	.540	.110
December	.860	1.400	.540	.110
1918.				
January	.860	1.400	.540	.110
February	.860	1.400	.540	.110
March	.860	1.400	.540	.110
April	.860	1.400	.540	.110
May	1.200	1.400	.200	.110
June	1.200	1.400	.200	.110
July	1.200	1.400	.200	.110
August	1.200	1.400	.200	.110
September	1.200	1.400	.200	.110
October	1.200	1.400	.200	.110
November	1.200	1.400	.200	.110
December	1.200	1.400	.200	.110

TABLE 6.—*Monthly average prices of heavy crude petroleum, etc.*—Continued.

Year and month.	Heavy crude at wells, San Joaquin Valley.	Fuel oil San Francisco Bay refinery.	Excess of fuel oil prices.	
			San Francisco Bay refineries over heavy crude.	Seattle over San Francisco Bay refineries.
1919.				
January	$1.200	$1.600	$0.370	$0.200
February	1.200	1.600	.370	.200
March	1.200	1.600	.370	.200
April	1.200	1.600	.370	.200
May	1.200	1.600	.370	.200
June	1.200	1.600	.370	.200
July	1.200	1.600	.370	.200
August	1.200	1.600	.370	.200
September	1.200	1.600	.370	.200
October	1.200	1.600	.370	.200
November	1.200	1.600	.370	.200
December	1.200	1.600	.370	.200
1920.				
January	1.200	1.600	.370	.200
February	1.200	1.600	.370	.200
March	1.350	1.720	.370	.200
April	1.480	1.850	.370	.200
May	1.480	1.850	.370	.200
June	1.480	1.850	.370	.200
July	1.585	1.955	.370	.200
August	1.650	2.020	.370	.200
September	1.650	2.020	.370	.200
October	1.650	2.020	.370	.200
November	1.650	2.020	.370	.200
December	1.650	2.020	.370	.200

TABLE 7.—*Distribution by cities of service stations owned and operated by three of the large marketing companies in the Pacific coast territory, January 1, 1920.*

Location.	Associated.	Standard.	Union.	Total.
Arizona: Tucson			1	1
California:				
Alameda		1		1
Anaheim		1		1
Baden		1		1
Bakersfield		1		1
Berkeley		4	2	6
Burlingame	2			2
Chico		1		1
Coalinga		1		1
Corning	1			1
Fresno	5	4	1	10
Galt	1			1
Gilroy		1		1
Hanford		1		1
Hayward		1	1	2
Lodi		1	1	2
Long Beach		20	1	21
Los Angeles	3	1		4
Marysville		1	1	2
Merced	2	1		3
Modesto	1	1	1	3
Monterey	1	1		2
Napa	1	1	1	3
Niles	2			2
Oakland	14	15	4	33
Ontario		1		1
Palo Alto		1		1
Pomona		1		1
Pasadena		2		2
Petaluma		1		1
Porterville	1	1		2
Redding	2	1	1	4
Redlands		1		1

TABLE 2.—*Distribution by cities of service stations, etc.*—Continued.

Location.	Associated.	Standard.	Union.	Total.
California—Continued.				
Redwood		1		1
Richmond		1		1
Riverside		2		2
Sacramento	7	9	1	17
Salinas		1		1
San Bernardino		1		1
San Diego		5		5
San Francisco	14	16	4	34
San Jose	7	6	3	16
San Juan Capistrano		1		1
San Leandro		1		1
San Luis Obispo	1	1	1	3
San Mateo		1		1
San Rafael	1	1		2
Santa Ana		3		3
Santa Barbara	1			1
Santa Clara		1		1
Santa Cruz	1	1		2
Santa Maria		1	1	2
Santa Monica		1		1
Santa Rosa		1		1
Stockton	1	1		2
Taft	5	5	4	14
Tracy		1		1
Tulare		1		1
Vacaville	1		1	2
Ventura		1		1
Visalia		1	1	2
Watsonville		1		1
Willows	1			1
Woodland	1	1		2
Nevada: Reno		1	1	2
Oregon:				
Albany		1		1
Corvallis		1		1
Eugene		1		1
Medford		1		1
Portland	5	20		25
Salem		1	1	2
Vancouver		1		1
Washington:				
Ellensburg		1		1
Hillyard		1		1
Mount Rainier		1		1
Olympia		1		1
Seattle		21		21
Spokane		6		6
Tacoma		6	1	7
Yakima		3		3

TABLE 8.—*Domestic sales of gasoline in the Pacific coast marketing territory, by the principal marketing companies, by States, 1914–June 30, 1919, and total domestic and export sales, 1914–1919.*

State and year.	Standard.		Union.		Associated.		Shell.		Total.
	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.
Arizona:									
1914	1,940,460	68.6	845,936	31.4					2,786,496
1915	2,640,700	73.0	980,383	27.0					3,630,083
1916	4,731,600	65.6	1,141,014	19.4					5,872,614
1917	7,670,700	83.1	1,561,989	16.9					9,232,689
1918	8,833,700	82.0	1,936,123	18.0					10,769,823
1919[1]	4,686,150	70.1	1,181,514	29.9					5,867,664
California:									
1914	36,297,460	62.5	17,197,311	29.6	4,581,215	7.9			58,076,076
1915	47,806,600	58.5	24,515,196	31.5	10,057,709	12.0			84,379,505
1916	65,134,450	52.3	38,401,220	30.8	15,703,782	16.9			124,239,451
1917	86,984,240	55.0	39,935,353	25.0	21,979,327	19.0			118,879,019
1918	92,185,200	58.1	32,045,372	25.9	20,811,775	15.9	7,653,493	5.1	140,725,840
1919[1]	42,732,680	50.4	23,570,376	27.6	14,881,360	17.3	4,606,255	4.7	84,800,671
Idaho:									
1914	40,671	100.0							40,671
1915	100	100.0							100
1916	82,633	100.0							82,633
1917	70	100.0							70
1918	[2]80								80
1919[1]							85,535	100.0	85,535
							36,149	100.0	36,149
Nevada:									
1914	773,280	100.0							773,280
1915	1,126,200	85.8	185,709	14.2					1,311,909
1916	6,032,200	95.4	289,085	4.5	133,214	2.1			6,454,499
1917	1,982,800	74.9	265,251	10.0	399,463	15.1			2,647,514
1918	2,170,400	72.3	462,200	15.3	382,340	12.6	11,717	.4	3,016,657
1919[1]	1,145,300	73.9	301,000	19.5	103,000	6.6	[2]107		1,549,407
Oregon:									
1914	5,803,199	67.0	2,801,271	34.4	705,641	8.6			8,310,112
1915	7,685,200	64.6	2,474,628	20.9	1,680,357	14.2			11,841,185
1916	9,910,100	68.1	2,970,722	19.9	2,091,774	14.6			14,972,597
1917	12,812,000	68.3	4,264,633	21.1	2,867,911	14.7			20,125,544
1918	15,892,200	68.3	4,605,417	19.8	2,830,000	12.2	1,922,988	1.6	24,250,605
1919[1]	6,704,200	61.3	2,220,200	20.6	2,132,450	13.7	705,600	3.8	15,975,750

TABLE 8.—*Domestic sales of gasoline in the Pacific coast marketing territory, by the principal marketing companies, by States, 1914–June 30, 1919, and total domestic and export sales, 1914–1919*—Continued.

State and year.	Standard.		Union.		Associated.		Shell.		Total.
	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.
Total domestic:									
1914	58,271,824	68.6	22,673,663	27.1	5,431,326	6.4			84,376,813
1915	74,547,[illegible]	66.6	[illegible]	[illegible]	15,[illegible]	9.8			112,[illegible]
1916	[illegible]	[illegible]	[illegible]	[illegible]	19,[illegible]	12.4			147,[illegible]
1917	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12.8			[illegible]
1918	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11.3	12,671,665	5.0	[illegible]
1919[1]	104,[illegible]	68.6	37,697,700	25.3	[illegible]	12.1	14,500,000	4.5	[illegible]
Exports:									
1914	3,[illegible]	68.3	2,[illegible]	27.7					6,371,[illegible]
1915	[illegible]	[illegible]	[illegible]	4.1					[illegible]
1916	[illegible]	[illegible]	[illegible]	[illegible]	333,697	2.0			[illegible]
1917	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.6			[illegible]
1918	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14.3	1,[illegible]	3.7	[illegible]
1919[1]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.4	1,212,036	2.9	[illegible]

Grand total:	Gallons.
1914	[illegible]
1915	137,[illegible]
1916	[illegible]
1917	[illegible]
1918	[illegible]
1919	[illegible]

[1] First six months.

[2] Includes General Petroleum Corporation, 1,894,236 gallons, or six-tenths per cent of total.

TABLE 9.—*Domestic sales of engine distillate in the Pacific coast marketing territory, by the principal marketing companies, by States, 1914–June 30, 1919, and total domestic and export sales, 1914–1919.*

State and year.	Standard.		Union.		Associated.		Shell.		Total.
	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.
Arizona:									
1914	523,450	75.4	165,466	23.6					700,916
1915	588,000	77.4	172,235	22.6					760,235
1916	917,000	75.5	296,130	24.4					1,213,130
1917	1,300,000	73.5	468,000	26.5					1,768,000
1918	1,800,000	84.0	342,000	16.0					2,142,000
1919	900,000	81.2	208,000	18.8					1,108,000
California:									
1914	16,295,750	66.0	8,385,000	34.0	2,000,000	7.6			
1915	17,000,000	58.7	15,000,000	51.1	1,000,000	3.5			
1916	20,000,000	41.0	14,000,000	28.7	14,315,473	30.3			
1917	20,000,000	42.0	14,000,000	29.3	13,600,000	28.6			
1918	15,000,000	39.0	17,000,000	44.2	8,500,000	21.7	2,750,000	7.2	
1919	15,000,000	66.0	6,100,000	26.8	2,000,000	8.7	1,000,000	4.5	
Idaho:									
1914	73,000	100.0							
1915	80,000	100.0							
1916	90,000	100.0							
1917	80,000	100.0							
1918	217,000	100.0							
1919	100,000	98.2					2,000	1.8	
Nevada:	150,000	98.6					2,000	1.4	
1914	200,000	100.0							
1915	215,000	95.9	9,000	4.1					
1916	300,000	86.7	41,000	8.0	33,000	6.3			
1917	327,000	83.6	27,331	4.2	58,104	11.2			
1918	744,000	77.4	160,000	16.0	60,000	6.0	3,811	.3	
1919	300,000	78.1	100,270	26.0	17,301	4.1			
Oregon:									
1914	1,105,730	64.0	709,995	33.0	332,677	13.2			2,146,513
1915	1,221,000	61.0	627,152	27.0	355,136	15.1			2,203,288
1916	2,000,000	54.1	845,477	22.2	850,797	23.0			3,696,274
1917	2,000,000	53.0	1,000,000	26.0	800,000	21.0			3,800,000
1918	3,144,000	63.0	870,000	17.0	1,000,000	20.0			5,014,000
1919	4,150,000	73.0	642,130	11.1	780,043	13.0	93,000	1.6	5,665,173
Washington:	1,700,000	70.7	481,042	18.2	305,499	8.0	36,276	1.9	2,522,817
1914	6,204,250	70.7	2,000,000	29.3					8,770,344
1915	6,027,000	74.6	2,077,000	25.4					8,104,000
1916	7,200,000	73.0	2,712,000	27.0					10,045,000
1917	10,000,000	78.7	2,000,000	21.3					12,000,000

[1] First six months.

TABLE 9.—*Domestic sales of engine distillate in the Pacific coast marketing territory, by the principal marketing companies, by States, 1914–June 30, 1919, and total domestic and export sales, 1914–1919.*—Continued.

States and year.	Standard.		Union.		Associated.		Shell.		Total.
	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.
Washington—Continued.									
1918	10,744,220	84.9	1,848,770	14.6			55,422	.5	12,648,412
1919 [1]	4,982,180	89.8	1,140,513	20.5			22,863	.4	6,077,547
Total six States:									
1914	24,372,228	61.1	12,026,271	30.2	3,388,484	8.4			39,886,983
1915	26,479,159	58.6	13,227,954	29.3	5,373,216	11.9			45,080,329
1916	30,852,984	47.8	16,427,955	25.4	16,980,914	26.8			64,261,853
1917	42,515,437	49.0	19,773,230	22.7	24,631,857	28.3			86,915,523
1918	45,722,988	44.3	25,982,196	25.1	30,651,681	29.3	4,914,413	5.3	107,271,278
1919 [1]	27,280,788	59.2	11,096,573	24.7	9,998,402	22.3	1,742,780	3.9	44,818,543
Alaska:									
1914	1,280,220	100.0							1,280,220
1915	1,612,282	91.2	156,442	8.8					1,768,724
1916	2,225,720	91.7	201,295	8.3					2,427,015
1917	2,977,262	99.0	1,222,674	4.0					4,199,936
1918	2,282,736	99.3	15,388	.7					2,298,124
1919 [1]	1,370,180	100.0							1,370,180
Hawaii:									
1914	247,160	72.8			92,297	27.2			339,457
1915	337,159	84.7	61,000	15.3					398,159
1916	510,362	64.5	240,778	30.4	40,860	5.1			792,000
1917	1,382,152	71.7	398,221	20.6	147,332	7.7			1,927,705
1918	1,734,152	83.5	119,518	5.8	221,988	10.7			2,075,658
1919 [1]	992,660	93.6	61,944	5.4	106,688	10.0			1,061,282
Philippines:									
1914									
1915									
1916	59,334	84.0			11,258	16.0			70,592
1917	2,650	2.3			80,750	68.7			83,400
1918	109,130	97.5			2,750	2.5			111,880
1919 [1]	1,600	1.7			87,780	98.3			89,380
Other domestic:									
1914	87,706	100.0							87,706
1915	4,771,118	100.0							4,771,118
1916	24,130,446	100.0							24,130,446
1917									
1918			[2] 422				4,222,220	100.0	4,222,642
1919 [1]							24,687	100.0	24,687

Total domestic:

Export:

Grand total:

1 First six months.
2 Pan American Petroleum Corporation, 6,000,777 gallons or 4.4 per cent of totals.
3 Less than 0.05 (1/2000th) of 1 per cent.

TABLE 10.—*Domestic sales of kerosene in the Pacific coast marketing territory, by the principal marketing companies, by States, 1914–June 30, 1919, and total domestic and export sales, 1914–1919.*

State and year.	Standard.		Union.		Associated.		Shell.		Total.
	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.
Arizona:									
1914	860,280	84.2	290,267	15.8					1,140,577
1915	1,073,350	77.2	317,938	22.8					1,391,288
1916	1,362,200	78.6	353,482	21.5					1,645,682
1917	1,725,400	81.3	403,911	18.7					2,159,311
1918	2,210,280	81.2	510,709	18.8					2,721,013
1919 [1]	1,308,850	79.3	350,376	20.7					1,659,226
California:									
1914	16,806,000	76.9	4,994,892	22.8	71,216	.3			21,861,887
1915	17,127,250	73.4	5,714,365	24.5	493,514	2.1			23,335,129
1916	18,665,560	74.5	5,760,930	23.0	630,228	2.5			25,074,788
1917	20,620,550	77.2	5,437,102	20.3	655,731	2.5			26,713,773
1918	22,898,200	74.5	6,066,421	19.8	928,278	3.2	776,765	2.5	30,739,663
1919 [1]	14,461,550	73.4	4,326,060	21.9	331,344	2.6	492,213	2.1	19,711,207
Idaho:									
1914	157,101	100.0							157,101
1915	26,915	100.0							26,915
1918 [1]	10,300	100.0							10,300
Nevada:									
1914	216,000	100.0							216,000
1915	317,450	92.5	17,567	7.5					335,017
1916	340,200	92.7	16,923	7.1	422	.2			357,074
1917	279,000	93.6	20,307	6.9	1,322	.5			294,988
1918	333,600	91.6	29,661	8.0	780	.3	215	.1	363,256
1919 [1]	136,400	90.2	16,110	10.6	813	.2			153,323
Oregon:									
1914	3,177,600	82.4	675,997	17.6	1,921	(2)			3,854,518
1915	3,001,200	83.5	594,211	16.6	25,[illegible]	.9			3,[illegible]
1916	3,276,000	83.5	652,758	16.4	[illegible]	1.3			[illegible]
1917	3,494,000	83.4	685,708	16.1	[illegible]	1.5			[illegible]
1918	3,865,800	83.7	678,833	12.6	62,000	2.0	21,404	1.7	[illegible]
1919 [1]	2,102,400	81.5	376,253	15.9	52,200	1.6	32,466	1.2	[illegible]
Washington:									
1914	4,224,287	82.9	868,823	17.1					[illegible]
1915	4,248,000	82.7	873,574	17.3					[illegible]
1916	4,351,200	83.7	1,[illegible]	16.3					[illegible]
1917	5,252,200	86.1	838,198	12.9					[illegible]
1918	7,070,200	87.5	852,865	12.1			1,110	.1	[illegible]
1919 [1]	4,113,600	88.5	530,276	11.4			2,967	.1	[illegible]
Total six States:									
1914	26,624,441	78.9	6,987,981	21.0	73,359	.2			33,684,189
1915	26,075,800	76.2	7,676,365	22.3	524,436	1.5			34,276,601

TABLE 11.—*Domestic sales of lubricating oils in the Pacific coast marketing territory, by the principal marketing companies, by States, 1914–June 30, 1919, and total domestic and export sales, 1914–1919.*

State and year.	Standard.		Union.		Associated.		Shell.		Total.
	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.
Arizona:									
1914	624,400	92.5	50,526	7.5					674,926
1915	634,700	81.8	141,221	18.2					775,921
1916	1,008,200	86.5	156,368	13.5					1,164,568
1917	1,192,550	88.5	154,378	11.5					1,346,928
1918	1,275,650	87.9	130,262	12.1					1,405,912
1919 [1]	608,900	84.9	107,385	15.1					716,285
California:									
1914	5,705,000	77.7	1,469,239	22.3	10	(2)			7,469,249
1915	5,490,200	74.0	1,908,733	24.3	80,980	1.2			7,479,913
1916	6,783,330	58.3	4,695,227	40.4	148,740	1.3			11,627,333
1917	9,695,190	62.3	5,328,542	35.0	271,100	1.7			15,770,832
1918	11,142,160	57.9	4,980,895	25.9	766,460	4.0	2,355,642	12.2	19,244,717
1919 [1]	5,719,200	59.4	2,305,634	23.6	291,224	3.2	702,308	7.3	9,018,766
Idaho:									
1914	126,966	100.0							126,966
1915	217,851	100.0							217,851
1916	232,231	100.0							232,231
1917	477,982	100.0							477,982
1918	580,736	84.1					95,122	1.8	675,858
1919 [1]	127,486	84.1					22,210	15.9	149,696
Nevada:									
1914	159,750	100.0							159,750
1915	186,150	96.9	5,980	3.1					192,130
1916	333,150	94.5	19,488	5.4	638	.2			353,276
1917	516,550	93.0	38,891	7.5	1,054	.2			556,495
1918	358,150	87.9	45,889	10.9	2,898	.4	2,320	.6	409,257
1919 [1]	136,979	84.7	22,900	14.0	1,889	.9	888	.4	164,657
Oregon:									
1914	879,350	94.3	51,126	5.5					930,476
1915	1,241,100	89.0	82,888	5.9	3,907	.3			1,327,895
1916	1,115,222	85.0	187,784	14.0	4,516	.4			1,307,522
1917	1,709,222	88.1	210,210	10.8	5,995	.3			1,925,427
1918	2,215,700	79.0	515,225	18.4	12,277	.4	155,094	7.6	2,898,296
1919 [1]	975,450	75.1	325,500	18.7	12,392	.9	136,925	10.3	1,300,270
Washington:									
1914	3,169,450	91.0	314,990	9.0					3,374,310
1915	3,102,222	85.4	532,221	14.6					3,621,217
1916	3,822,222	82.4	821,221	17.6					4,643,443
1917	3,822,150	81.3	782,210	18.7					4,604,360

[illegible]

[illegible]

[illegible]

TABLE 11.—*Domestic sales of lubricating oils in the Pacific coast marketing territory, by the principal marketing companies, by States, 1914—June 30, 1919, and total domestic and export sales, 1914–1919*—Continued.

State and year	Standard.		Union.		Associated.		Shell.		Total.
	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.
Exports:									
1914	2,455,617	100.0							2,455,617
1915	3,005,528	99.5	17,327	0.5					3,022,855
1916	6,309,928	91.6	805,998	8.4					7,115,926
1917	7,379,447	91.2	715,245	8.8					8,094,692
1918	12,965,579	98.4	205,057	1.7	4,155	(1)	233,742	2.0	13,408,533
1919	10,992,708	78.5	476,466	3.3			2,582,843	22.2	14,051,017
Grand total:									
1914						16,075,091			
1915						22,142,615			
1916						23,145,970			
1917						41,092,126			
1918						67,020,997			
1919						50,091,943			

[1] Less than .05 (5/100th) of 1 per cent.

TABLE 12.—*Domestic sales of gas oil in the Pacific coast marketing territory, by the principal marketing companies, by States, 1914–June 30, 1919, and total domestic and export sales, 1914–1919.*

State and year.	Standard.		Union.		Shell.		Total gallons.
	Gallons.	Per cent.	Gallons.	Per cent.	Gallons.	Per cent.	
Arizona:							
1914	1,322,966	100.0					1,322,966
1915	2,480,102	88.3	330,243	11.7			2,810,345
1916	2,978,803	94.4	176,138	5.6			3,154,941
1917	3,008,808	95.6	136,127	4.4			3,144,935
1918	4,222,512	99.9	611,466	.1	6,474	.0	4,840,452
1919 [1]	2,013,105	98.7	26,443	1.3			2,041,548
California:							
1914	23,940,000	100.0					23,940,000
1915	12,910,236	76.0	4,076,100	24.0			16,986,336
1916	16,201,563	87.1	2,401,432	12.9			18,602,995
1917	15,703,966	77.5	4,570,264	22.5			20,274,230
1918	10,094,694	61.9	1,796,845	11.0	4,406,283	27.1	16,297,822
1919 [1]	2,272,790	54.0	385,230	9.3	2,496,823	37.7	6,652,843
Nevada:							
1914	23,772	100.0					23,772
1915	244,400	100.0					244,400
1916	285,472	100.0					285,472
1917	139,798	100.0					139,798
1918	966,766	17.5	726,233	50.5	770,648	32.0	1,493,648
1919 [1]	694,980	74.2	195,615	18.3	126,833	10.5	1,219,428
Oregon:							
1914	415,266	100.0					415,266
1915	437,813	87.4	61,404	12.6			499,217
1916	338,388	63.4	178,083	36.6			516,471
1917	865,453	67.6	414,165	32.4			1,279,618
1918	1,088,288	71.5	345,033	24.0	63,515	4.5	1,496,836
1919 [1]	116,366	58.7	111,086	32.9	20,933	8.4	238,385
Washington:							
1914	2,748,980	100.0					2,748,980
1915	2,000,884	54.4	1,667,189	45.6			3,668,073
1916	2,388,243	58.7	1,682,288	41.3			4,071,131
1917	4,222,253	58.7	2,714,200	41.3			6,936,453
1918	4,000,613	53.6	3,462,160	46.4			7,462,773
1919 [1]	4,616,286	67.6	1,308,389	22.4			5,774,675
Total five States:							
1914	28,451,944	100.0					28,451,944
1915	18,163,644	74.5	6,213,164	25.5			24,376,808
1916	22,192,548	82.3	4,764,444	17.6			26,957,992
1917	23,727,284	74.7	7,835,756	25.3			31,571,139
1918	17,882,783	68.1	6,764,686	25.3	4,776,920	16.7	26,444,389
1919 [1]	9,305,225	68.0	2,026,651	15.0	2,642,738	19.0	13,941,614
Alaska:							
1919	91,644	100.0					91,644
Hawaii:							
1914	228	100.0					228
1915	1,344	.1	988,215	99.9			989,559
1916	27,288	100.0					27,288
1917	132,644	100.0					132,644
1918	285,688	100.0					285,688
1919 [1]	612,708	100.0					612,708
Other domestic:							
1915			965,212	100.0			965,212
1916			2,220,888	100.0			2,220,888
1917			2,830,630	100.0			2,830,630
1918			1,700,000	100.0			1,700,000
1919 [1]			511,613	100.0			511,613
Total domestic:							
1914	28,451,680	100.0					28,451,680
1915	18,161,288	68.1	8,166,570	30.6			26,327,858
1916	22,192,548	74.7	7,185,332	24.2			29,377,880
1917	23,861,928	70.6	8,665,386	29.0			32,527,314
1918	18,168,471	68.9	7,464,719	28.3	4,720,962	16.8	26,354,152
1919	9,396,869	68.0	2,538,264	18.3	2,642,738	19.2	[2] 13,877,871
Exports:							
1914	1,221,682	100.0					1,221,682
1915	666,356	98.1	5,413	.9			670,769
1916	372,276	28.9	1,865,086	72.1			2,237,362
1917	2,661,228	71.4	1,064,288	28.6			4,225,516
1918	2,745,288	66.7	977,638	23.7	393,344	9.6	4,116,270
1919	2,226,780	56.9	1,687,849	43.1			3,914,629

Grand total:	Gallons.	Grand total:	Gallons.
1914	29,673,362	1917	37,752,830
1915	26,993,625	1918	30,470,422
1916	29,749,156	1919	[2] 16,797,500

[1] First six months. [2] Includes General Petroleum Corporation 22,851,630 gallons, or 41 per cent of total.

TABLE 13.—*Retail prices of gasoline, by the principal marketing companies, at Los Angeles and San Francisco, Calif.; Portland, Oreg.; Seattle and Spokane, Wash.; Phoenix, Ariz.; and Reno, Nev., with dates of change in price. January, 1914–1920.*

[Prices in cents per gallon]

Date of change in price.	Los Angeles.		San Francisco.				Portland, Oreg.				Seattle, Wash.			Spokane, Wash.		Phoenix, Ariz.		Reno, Nev.		
	Standard Oil Co.	Union Oil Co.	Standard Oil Co.	Union Oil Co.	Associated Oil Co.	Shell Co.	Standard Oil Co.	Union Oil Co.	Associated Oil Co.	Shell Co.	Standard Oil Co.	Union Oil Co.	Shell Co.	Standard Oil Co.	Shell Co.	Standard Oil Co.	Union Oil Co.	Standard Oil Co.	Union Oil Co.	Associated Oil Co.
1914.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.
January 1	14.5	14.5	15.5	14.5	.....	.....	16	15	.....	.....	16	15	.....	17	.....	19	20	19.5	18.5	.....
May 1	.....	.....	.....	.....	.....	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May 20	14	14	15	14	15	14.5	15.5	14.5	15.5	.....	15.5	14.5	.....	16.5	.....	15.5	15.5	15	16	.....
July 1	13.5	13.5	14.5	13.5	14.5	.....	15	14	15	.....	15	14	.....	15.5	.....	19	19	15.5	17.5	.....
September 5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
September 7	.....	.....	15.5	.....	13.5	.....	14	.....	14	.....	14	.....	.....	.....	.....	.....	.....	17.5	.....	.....
September 15	.....	.....	.....	.....	.....	13.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
October 22	12.5	12.5	12.5	12.5	12.5	12.5	13	13	13	13	13	13	13	14.5	14.5	17	15	16.5	16.5	.....
1915.																				
February 2	11.5	12.5	11.5	11.5	11.5	11.5	13	13	13	12	13	13	12	13.5	13.5	15	17	13.5	15.5	.....
February 3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.5	14.5	17	.....	.....	.....	.....
February 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
July 1	11	11	11	11	11	11	11.5	11.5	11.5	11.5	11.5	11.5	11.5	.....	.....	16.5	15.5	13	13	.....
September 20	12	12	12	12	12	12	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	17.5	17.5	16	16	.....
October 2	13	13	13	13	13	13	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	16.5	16.5	17	17	.....
October 16	14	14	14	14	14	14	14.5	14.5	14.5	14.5	14.5	14.5	14.5	17.5	17.5	18.5	19.5	18	18	.....
November 27	15	15	15	15	.....	15	15.5	14.5	.....	14.5	15.5	15.5	15.5	19.5	19.5	20.5	20.5	19	19	.....
November 30	.....	.....	.....	.....	15	.....	.....	.....	14.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1916.																				
January 5	16	16	16	16	16	16	16.5	16.5	16.5	16.5	16.5	16.5	16.5	19.5	19.5	21.5	21.5	20	20	.....
February 7	17	17	17	17	17	17	17.5	17.5	17.5	17.5	17.5	17.5	17.5	20.5	20.5	22.5	23.5	21	21	.....
February 15	18	18	18	18	18	18	18.5	18.5	18.5	18.5	18.5	18.5	18.5	21.5	21.5	23.5	24.5	22	22	.....
April 6	19	19	19	19	.....	19	19.5	19.5	.....	19.5	19.5	19.5	19.5	22.5	22.5	24.5	24.5	23	23	.....
April 7	.....	.....	.....	.....	19	.....	.....	.....	19.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
August 1	.....	.....	.....	.....	.....	.....	20.5	.....	.....	20.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
August 3	.....	.....	.....	.....	.....	.....	.....	.....	20.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December 5	20	20	20	20	.....	.....	21.5	20.5	.....	21.5	20.5	20.5	20.5	.....	.....	25.5	25	24	24	.....
December 8	.....	.....	.....	.....	20	20	.....	.....	21.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
1917.																				
February 2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
February 5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23.5	25.5	.....	.....	.....	.....	.....
May 21	.....	.....	.....	.....	.....	.....	20.5	.....	20.5	20.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

| | | |

TABLE 14.—*Monthly average retail prices of gasoline at San Francisco, Portland, and Seattle, with index numbers (January, 1914=100), 1914–1921.*

Date.	Average retail market price of gasoline.					
	Per gallon.			Index number.		
	San Francisco.	Seattle.	Portland.	San Francisco.	Seattle.	Portland.
1914						
January	$0.135	$0.180	$0.160	100	100	100
February	.135	.160	.160	100	100	100
March	.135	.160	.160	100	100	100
April	.135	.160	.160	100	100	100
May	.132	.156	.156	98	98	98
June	.130	.155	.155	97	97	97
July	.145	.150	.150	94	94	94
August	.145	.150	.150	94	94	94
September	.127	.142	.142	89	89	89
October	.123	.127	.127	95	95	95
November	.125	.130	.130	81	81	81
December	.125	.130	.130	81	81	81
1915						
January	.125	.130	.130	81	81	81
February	.116	.130	.130	74	75	75
March	.116	.130	.130	74	75	75
April	.115	.130	.130	74	75	75
May	.115	.130	.130	74	75	75
June	.115	.130	.130	74	75	75
July	.111	.116	.116	72	73	72
August	.110	.115	.115	71	73	72
September	.113	.118	.118	72	74	74
October	.131	.138	.138	85	85	86
November	.141	.148	.148	91	91	91
December	.150	.154	.155	97	97	97
1916						
January	.150	.164	.164	103	102	102
February	.173	.173	.178	113	111	111
March	.180	.185	.185	116	115	116
April	.186	.190	.190	121	121	121
May	.190	.192	.195	122	122	122
June	.190	.192	.195	122	122	122
July	.190	.195	.195	122	122	122
August	.190	.195	.205	122	122	128
September	.190	.195	.205	122	122	128
October	.190	.195	.205	122	122	128
November	.190	.195	.205	122	122	128
December	.200	.205	.215	129	128	134
1917						
January	.200	.205	.215	129	128	134
February	.200	.205	.215	129	128	134
March	.200	.205	.215	129	128	134
April	.200	.205	.215	129	128	134
May	.200	.205	.211	129	128	132
June	.200	.205	.205	129	128	128
July	.200	.205	.205	129	128	128
August	.200	.205	.205	129	128	128
September	.200	.205	.205	129	128	128
October	.200	.205	.205	129	128	128
November	.200	.205	.205	129	128	128
December	.200	.205	.205	129	128	128
1918						
January	.200	.205	.205	129	128	128
February	.200	.205	.205	129	128	128
March	.200	.205	.205	129	128	128
April	.200	.210	.210	129	131	131
May	.200	.210	.210	129	131	131
June	.200	.210	.210	129	131	131
July	.200	.210	.210	129	131	131
August	.204	.214	.214	132	134	134
September	.205	.215	.215	132	134	134
October	.205	.215	.205	132	134	128
November	.205	.215	.215	132	134	134
December	.205	.215	.215	132	134	134

TABLE 14.—*Monthly average retail prices of gasoline at San Francisco, Portland, and Seattle, with index numbers (January, 1914=100), 1914–1927.*—Con.

Date.	Average retail market price of gasoline.					
	Per gallon.			Index number.		
	San Francisco.	Seattle.	Portland.	San Francisco.	Seattle.	Portland.
1919						
January	$0.215	$0.215	$0.213	122	134	134
February	.215	.215	.213	122	134	134
March	.215	.215	.213	122	134	134
April	.215	.215	.213	122	134	134
May	.215	.215	.213	122	134	134
June	.215	.215	.213	122	134	134
July	.215	.215	.213	122	134	134
August	.215	.215	.213	122	134	134
September	.215	.215	.213	122	134	134
October	.215	.215	.213	122	134	134
November	.215	.215	.213	122	134	134
December	.215	.215	.213	122	134	134
1920						
January	.215	.215	.213	122	134	134
February	.215	.215	.213	122	134	134
March	.215	.215	.213	122	134	134
April	.215	.215	.213	122	134	134
May	.215	.215	.213	122	134	134
June	.215	.215	.213	122	134	134
July	.215	.215	.213	122	134	134
August	.215	.215	.213	122	134	134
September	.215	.215	.213	122	134	134
October	.215	.215	.213	122	134	134
November	.215	.215	.213	122	134	134
December	.215	.215	.213	122	134	134
1921						
January	.215	.215	.213	122	134	134
February	.215	.215	.213	122	134	134
March	.215	.215	.213	122	134	134
April	.215	.215	.213	122	134	134
May	.215	.215	.213	122	134	134
June	.215	.215	.213	122	134	134
July	.215	.215	.213	122	134	134
August	.215	.215	.213	122	134	134
September	.215	.215	.213	122	134	134
October	.215	.215	.213	122	134	134
November	.215	.215	.213	122	134	134
December	.215	.215	.213	122	134	134

TABLE 15.—*Monthly average wholesale tank-wagon prices of gasoline at San Francisco and Kansas City, with index numbers (January, 1914=100), 1914–1921.*

Month.	1914.				1915.			
	San Francisco.		Kansas City.		San Francisco.		Kansas City.	
	Per gallon.	Index No.	Per gallon.	Index No.	Per gallon.	Index No.	Per gallon.	Index No.
January	$0.145	100	$0.140	100	$0.105	72	$0.100	[illegible]
February	.145	100	.135	96	.095	66	.093	[illegible]
March	.145	100	.135	96	.095	66	.093	[illegible]
April	.145	100	.130	93	.095	66	.093	[illegible]
May	.142	98	.125	89	.095	66	.093	[illegible]
June	.140	97	.120	86	.095	66	.093	[illegible]
July	.135	93	.108	77	.091	63	.093	[illegible]
August	.135	93	.103	74	.089	62	.093	[illegible]
September	.127	88	.103	74	.095	66	.093	[illegible]
October	.123	84	.103	74	.111	77	.103	[illegible]
November	.105	72	.103	74	.123	85	.118	[illegible]
December	.105	73	.103	74	.130	90	.125	[illegible]
	1916.				1917.			
January	.129	89	.158	113	.150	104	.148	[illegible]
February	.153	106	.162	116	.150	104	.148	[illegible]
March	.160	110	.168	120	.150	104	.148	[illegible]
April	.168	116	.178	127	.150	104	.148	[illegible]
May	.170	117	.178	127	.150	104	.148	[illegible]
June	.170	117	.178	127	.150	104	.148	[illegible]
July	.170	117	.178	127	.150	104	.148	[illegible]
August	.170	117	.178	127	.150	104	.148	[illegible]
September	.170	117	.168	120	.150	104	.203	[illegible]
October	.170	117	.158	113	.150	104	.203	[illegible]
November	.170	117	.148	106	.150	104	.203	[illegible]
December	.180	124	.148	106	.150	104	.203	[illegible]
	1918.				1919.			
January	.180	124	.208	148	.195	135	.203	[illegible]
February	.180	124	.208	148	.195	135	.203	[illegible]
March	.180	124	.208	148	.195	135	.203	[illegible]
April	.180	124	.208	148	.195	135	.203	[illegible]
May	.180	124	.218	156	.195	135	.203	[illegible]
June	.180	124	.218	156	.192	132	.203	[illegible]
July	.180	124	.218	156	.195	134	.215	[illegible]
August	.184	126	.223	159	.195	134	.213	[illegible]
September	.185	128	.223	159	.195	134	.213	[illegible]
October	.185	128	.223	159	.195	134	.213	[illegible]
November	.185	128	.223	159	.195	134	.213	[illegible]
December	.185	128	.223	159	.196	134	.214	[illegible]
	1920.				1921.			
January	.195	134	.216	154	.260	172	.240	[illegible]
February	.195	134	.231	165	.260	172	.210	[illegible]
March	.206	141	.243	174	.260	172	.210	[illegible]
April	.215	148	.253	180	.260	172	.210	[illegible]
May	.215	148	.253	180	.208	144	.188	[illegible]
June	.215	148	.253	180	.200	139	.188	[illegible]
July	.215	148	.253	180	.200	139	.167	[illegible]
August	.244	168	.253	180	.211	146	.158	[illegible]
September	.260	172	.265	189	.210	145	.157	[illegible]
October	.260	172	.265	189	.210	145	.168	[illegible]
November	.260	172	.265	189	.210	145	.178	[illegible]
December	.260	173	.266	189	.210	145	.189	[illegible]

TABLE 16.—*Monthly average wholesale tank-wagon prices of kerosene at San Francisco and Kansas City, with index numbers (January, 1914=100), 1914–1921.*

Date.	San Francisco.		Kansas City.		Date.	San Francisco.		Kansas City.	
	Per gallon.	Index number.	Per gallon.	Index number.		Per gallon.	Index number.	Per gallon.	Index number.
1914					1918				
January	$0.080	100	$0.055	100	January	$0.080	100	$0.065	74
February	.080	100	.055	100	February	.080	100	.065	74
March	.080	100	.055	100	March	.080	100	.065	74
April	.080	100	.055	100	April	.080	100	.065	74
May	.080	100	.050	91	May	.080	100	.063	68
June	.080	100	.050	91	June	.080	100	.063	68
July	.080	100	.050	91	July	.080	100	.063	68
August	.080	100	.050	91	August	.080	100	.063	68
September	.080	100	.050	91	September	.080	100	.063	68
October	.080	100	.050	91	October	.080	100	.063	68
November	.080	100	.050	91	November	.080	100	.063	68
December	.080	100	.050	91	December	.080	100	.065	77
1915					1917				
January	.080	100	.052	97	January	.080	100	.065	77
February	.080	100	.052	97	February	.080	100	.065	77
March	.080	100	.052	97	March	.080	100	.065	77
April	.080	100	.053	100	April	.080	100	.065	77
May	.080	100	.053	100	May	.080	100	.070	112
June	.080	100	.053	100	June	.080	100	.070	112
July	.080	100	.053	100	July	.080	100	.070	112
August	.080	100	.050	97	August	.080	100	.070	112
September	.080	100	.050	93	September	.080	100	.070	108
October	.080	100	.050	93	October	.080	100	.070	108
November	.080	100	.050	93	November	.080	100	.070	108
December	.080	100	.050	93	December	.080	100	.070	108
1916					1918				
January	.080	100	.050	143	January	.095	119	.070	108
February	.080	100	.050	143	February	.095	119	.070	108
March	.080	100	.050	143	March	.105	117	.070	108
April	.080	100	.050	143	April	.115	128	.070	108
May	.080	100	.050	135	May	.115	128	.115	177
June	.080	100	.050	135	June	.115	128	.115	177
July	.080	100	.050	135	July	.120	120	.120	184
August	.084	104	.050	135	August	.125	120	.125	192
September	.095	118	.050	135	September	.125	120	.121	208
October	.095	118	.050	135	October	.125	120	.120	215
November	.095	118	.050	135	November	.125	120	.120	215
December	.095	118	.050	135	December	.125	120	.120	215
1919					1921				
January	.125	120	.100	261	January	.145	116	.100	265
February	.125	120	.100	240	February	.145	116	.124	191
March	.120	144	.104	262	March	.145	116	.120	185
April	.125	150	.100	265	April	.155	124	.120	185
May	.125	150	.100	250	May	.145	116	.095	146
June	.125	150	.170	271	June	.145	116	.091	140
July	.155	172	.170	271	July	.145	141	.075	115
August	.155	155	.170	271	August	.145	141	.075	115
September	.155	124	.170	269	September	.145	141	.075	115
October	.155	124	.172	274	October	.145	141	.090	138
November	.155	124	.172	274	November	.145	141	.102	157
December	.155	124	.172	274	December	.145	141	.105	161

TABLE 17.—*Ownership and location of Standard Oil refineries shown on map facing page 130.*

No.	Company.	Location of refinery.
1	Standard Oil Co. (California)	Richmond, Calif.
2	do	Bakersfield, Calif.
3	do	El Segundo, Calif.
4	Utah Oil Refining Co.[1]	Salt Lake City, Utah.
5	Midwest Refining Co.[2]	Greybull, Wyo.
6	do	Casper, Wyo.
7	do	Laramie, Wyo.
8	United Oil Co.[3]	Piatteville, Colo.
9	Standard Oil Co. (Kansas)	Neodesha, Kans.
10	Carter Oil Co.[4]	Cartoco, Okla.
11	Magnolia Petroleum Co.	Corsicana, Tex.
12	do	Fort Worth, Tex.
13	do	Beaumont, Tex.
14	Galena-Signal Oil Co. of Texas	Galena, Tex.
15	Humble Oil & Refining Co.[4]	San Antonio, Tex.
16	do	Baytown, Tex.
17	Standard Oil Co. of Louisiana[4]	Baton Rouge, La.
18	Standard Oil Co. (Indiana)	Sugar Creek, Mo.
19	do	Wood River, Ill.
20	do	Whiting, Ind.
21	Standard Oil Co. (Kentucky)	Riverside, Ky.
22	Solar Refining Co.	Lima, Ohio.
23	Standard Oil Co. (Ohio)	Toledo, Ohio.
24	do	Cleveland, Ohio.
25	Atlantic Refining Co.	Franklin, Pa.
26	do	Pittsburgh, Pa.
27	do	Philadelphia, Pa.
28	do	Brunswick, Ga.
29	Standard Oil Co. (N. J.)	Parkersburg, W. Va.
30	do	Charleston, S. C.
31	do	Baltimore, Md.
32	do	Bayonne, N. J.
33	do	Bayway, N. J.
34	do	Jersey City, N. J.
35	Vacuum Oil Co.	Paulsboro, N. J.
36	do	Olean, N. Y.
37	Standard Oil Co. of New York	Buffalo, N. Y.
38	do	Brooklyn, N. Y.
39	do	Brooklyn, N. Y.
40	do	Long Island City, N. Y.
41	do	Providence, R. I.

[1] Controlled by the Midwest Refining Co.
[2] Controlled by the Standard Oil Co. (Indiana).
[3] Controlled by the Continental Oil Co.
[4] Controlled by the Standard Oil Co. (New Jersey).

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